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A WILD-ANIMAL ROUND-UP

BY WILLIAM T. HORNADAY

TALES FROM NATURE'S WONDERLANDS

A WILD-ANIMAL ROUND-UP
Stories and Pictures from the Passing Show

THE MINDS AND MANNERS OF WILD ANIMALS

CAMP FIRES ON DESERT AND LAVA

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TAXIDERMY AND ZOOLOGICAL COLLECTING

CHARLES SCRIBNER'S SONS

A WILD-ANIMAL ROUND-UP

STORIES AND PICTURES FROM THE PASSING SHOW

BY

WILLIAM T. HORNADAY, Sc.D., A.M.

AUTHOR OF "THE MINDS AND MANNERS OF WILD ANIMALS," "TALES FROM NATURE'S WONDERLANDS," "THE AMERICAN NATURAL HISTORY," ETC.

"The ranges are now the ranches,
And it's sheep, and bareness and wire.
Don't ever go near Black Butte again,
It's as bare as a prairie fire!"

CHARLES SCRIBNER'S SONS
NEW YORK · LONDON
1925

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BEFORE THE CURTAIN

In God's Outdoors the old order of things is passing away, and all things are becoming new. Is it for better or for worse? Really, if you but stop and think about it, you will find that the extent and thoroughness with which the once lovely face of Nature now is being scarified and disfigured by the hand of man, is amazing or worse.

Our once grand forests now exist chiefly as stumps and brush, or as spindling second-growth saplings too small to yield even railroad ties. Out on the once glorious and fragrant prairies of the Middle West, you will need two guides and a search warrant to find even one square rod of virgin prairie sod. And think of southern Florida to-day in comparison with what it was in 1875! It is enough to make dear old Anthony Dimock dig deeper into his grave. To read his "Florida Enchantments" now conjures up a long line of lovely panoramas of the Vanished Past.

We who are responsible for this volume feel that there are a certain number of old-fashioned nature-lovers who will care to have these wild-animal records of yesterday, and also of to-day, in form for the library shelf. It will not be many years more ere the most beautiful haunts of Nature are ripped open by improvements, scarified by roads and tourist camps, and everywhere infested by rushing automobiles. Already the wild beasts have fled to the remote recesses of the second-hand forests. The game birds are fast going down and out before the 6,000,000 American guns. I fear that even 10 years from now

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there will not remain enough wild animals in the outdoors to salt their pallid flavor, or to interest our pleasure-mad young people.

And so, on the production of this volume of sketches we take a sporting chance. The most and best of the abundant wild life of yesterday *is gone!* Much of it you never will see nor hear of again, save in song and story, and in other books like this, printed *in memoriam.* Yes, there is one other way. You will see a small amount of it in the beautiful habitat groups of mammals and birds of our museums; and, believe me, all the museum people now are hustling hard to make them while the making is even yet fairly good.

Honestly, I am glad that I will not be alive to see the tattered remnants of "picturesque America" as they will appear fifty years from to-day.

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W. T. H.

The Anchorage,
Stamford, Conn.,
July 1, 1925.

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A WILD-ANIMAL ROUND-UP

PART I

DIVERSIONS IN PICTURESQUE GAME-LANDS

Introduction to "Our Last Buffalo Hunt"

In 1925 I must preface this bit of bisonic history with a reminiscent note dating back thirty-nine years.

The two following chapters on "Our Last Buffalo Hunt" furnish the last word in 1889 of the once-great "northern herd," all except the 256 living wild survivors scattered in several widely separated localities and the 550 head of "wood bison" that were left over in the Peace River country, south of the western end of Great Slave Lake.

The Missouri-Yellowstone Divide, over which in 1886 the writer ranged and wrought for a big series of specimens for the bisonless United States National Museum, then was wild and unspoiled territory. The foul-smelling dust and the polluted water-holes that mark the progress of the hated domestic sheep were then and there invisible and unknown. The few bands of Texas cattle that fed fat on those virgin pastures had made not even a dent on the face of Nature. The gray and tight-curling buffalo grass of those rolling uplands was immaculately natural.

But now, all that is changed. A line of the Chicago, Milwaukee and St. Paul Railway runs westward through the heart of that once picturesque "Big Dry country." There are ranches of many kinds, —sheep, cattle and "dry,"—everywhere that a ranch can be made to stick. The barbed-wire fences break your heart. The grass has been so closely eaten down to its roots that those great high-rolling brushless divides look as if they had been shaven with safety razors. They say it takes five years for a range that has been thoroughly grazed over by sheep to recover from the shock.

Where there was not even a three-cabin settlement on the Big Dry in those golden days of 1886, there is now the hustling and proud town of Jerdon, with banks, churches, newspapers, people, and actually a Chamber of Commerce. I am ready to wager that to each and every habitant of that buffalo-range metropolis, every word of this veracious history will be news.

I

OUR LAST BUFFALO HUNT*

(1887)

In March, 1886, the writer received a severe shock, as if by a blow on the head from a well-directed mallet. He awoke, dazed and stunned, to a sudden realization of the fact that the buffalo-hide hunters of the United States had practically finished their work. The bison millions were not only "going," but gone! In the East "the public" at large seemed to be totally ignorant of that fact.

Coincident with this discovery, the writer—then for four years chief taxidermist of the United States National Museum, and engrossed in work on foreign mammals—also awoke to the fact that the American people's own official museum was absolutely destitute of good bison specimens of every kind.

The case was so serious that the writer prepared and handed to Professor Spencer F. Baird and Doctor G. Brown Goode a formal letter setting forth the gruesome facts mentioned above. However, a belief was expressed that there were, even then, somewhere in the West, some unkilled bands of bison from which specimens might be taken before the last of them were swept away.

Professor Baird at once sent for me, and said:

"I am greatly shocked and disturbed by your letter. The situation as you describe it is most serious. I dislike

* From *The Cosmopolitan Magazine*. Copyright 1887.

to be the means of killing any of those last bison, but since it is now utterly impossible to prevent their destruction we simply must take a large series of specimens, both for our own museum, and for other museums that sooner or later surely will want good specimens of wild bison. You must go West as soon as possible, find out definitely where specimens can be obtained, and collect—if it is not too late—at least twenty skins of males, females and young, ten or fifteen skeletons, and pick up about fifty skulls. The Smithsonian will meet the expenses, and I will ask the Secretary of War to help us all that he can, from the nearest Army post."

To all of us the idea of killing a score or more of the last survivors of the bison millions was exceedingly unpleasant; but we believed that our refraining from collecting the specimens we imperatively needed would not prolong the existence of the bison species by a single day. Subsequent events proved the absolute correctness of that belief. The three bison remnants then alive in Montana, Colorado and Texas all were utterly exterminated by hide-hunters, reckless cowboys and poachers, by the end of 1887.

And furthermore. . . . At that time there was not the slightest reason for either the belief or the hope that the bison species could or would be brought back and SAVED to the world by breeding in captivity. Then, in 1886, there were in all the world fewer than 800 bison alive, of which about 550 were in the far north near Great Slave Lake, and known of by only a few persons.

If the reader of 1925 now should feel doubtful about the ethical propriety of our last buffalo hunt, and the killing that we had to do in order that our National

Museum might secure a few good wild skins out of the wreck of the millions, let him feel assured that our task was by no means a pleasant one, and at the same time remember that the author has made some atonement to *Bison americanus* by the efforts that he has put forth since 1889 for the saving and the restoration of that species.

Never since Juan Cabeza de Vaca killed the first American bison on the Texas plains did any man ever set forth bison hunting with a heart as heavy, or as much oppressed by doubt, as that carried westward by the writer in May, 1886. When our spring expedition to discover bison was ready to start, Capt. C. E. Bendire, U. S. A., retired, came to my laboratory and in his most aggressive military manner said:

"Well, I hear that you are going to Montana to hunt buffalo, and I would like to bet you a hundred dollars that you don't find even one wild buffalo." It was like a final shower-bath of ice-cold water. I was too scared and apprehensive to make a suitable reply, except that Doctor Merrill's information seemed to be good, and that I would certainly do my best to get what I was going after, even if I had to go to Canada.

In May, 1886, therefore, we set out on our voyage of discovery, greeted at every step by the cheerful assurance, "The buffalo are all gone; and you can't get any anywhere." Wondering whether we would find our game in Montana, Texas, or the British Possessions, we decided to try Montana first, and to the great astonishment of the natives, as well as ourselves, were lucky enough—thanks to Doctor J. C. Merrill—to go straight to a tract of country which, ever since 1883, had furnished safe hiding, feeding, and breeding grounds for about seventy-five head,

The people of Miles City and also the army officers at Fort Keogh were all totally ignorant of the existence of those animals, and but for the information that came to me from Stillwater, one hundred and eighty-seven miles farther west, I might never have heard of them at all. When we reached Miles City on the 10th of May, the good people of that place were so sure there were no buffalo anywhere in that part of Montana, they almost talked us out of going any farther in that direction. When in the very depths of uncertainty luck came to our rescue. We met a big-hearted ranchman from the Little Dry—Mr. Henry R. Phillips, of the well-known LU-bar Ranch—and in a quiet but mighty convincing way, he said:

"There certainly are a few buffalo in the bad-lands west of our range, for one of our men killed a cow on Sand Creek on the 6th of this month; and about thirty-five head have been seen. If you go up there and hunt them, *and stick to it,* you're almost sure to get some in the end."

That settled it. We begged Mr. Phillips to "accept the assurance of our profound consideration," as the diplomats say, and immediately pulled across the treacherous Yellowstone for the headwaters of Little Dry Creek. Through the kindness of the Secretary of War we were furnished by the quartermaster of Fort Keogh with field transportation, camp equipage, and a small escort, and no matter how hard Lieutenant Thompson may have thought we were going on a wild-goose chase, he was an officer and a gentleman, and therefore could not say it, at least in our hearing.

With our great ark of a six-mule wagon loaded to the wagon-bows, we toiled slowly northward through the bad-lands up the Sunday Creek trail. We were thirty-five

miles from Miles City when we saw our first antelope, and forty when we came to the first bleaching bones of a buffalo. The former had been exterminated up to that point, and the buffalo-bones all picked up and sold for fertilizer. While in camp at the water-hole at the Red Buttes, a benighted teamster was guided to us by the light of the lantern that shone on the coyote I was skinning. The wayfarer proved to be an ex-buffalo-hunter, now a humble gatherer of buffalo-bones, operating along the Missouri River. He said that he and his brother had several wagons in the business, and the year before they shipped by the river steamers about two hundred tons of crushed bones at eighteen dollars per ton.

From the Red Buttes onward you could see where the millions had gone. This was once a famous buffalo-range, and now the bleaching skeletons lay scattered thickly all along the trail. Like ghastly monuments of slaughter, these ugly excrescences stood out in bold relief on the smooth, hard surface of the prairie, from the huge bull skeletons lying close beside the wagon trail to those far back in the bad-lands, where they were merely dark specks in the distance. They lay precisely as they fell four years before, except that the flesh was no longer upon them. The head stretched far forward, as if for its last gasp, and the legs lay helplessly upon the turf with precisely the same curves as when they moved for the last time.

Now and then you came to a place where the hunter got a "stand" on a "bunch," and from his hiding-place in the head of a gully or amongst the rocks fired leisurely with his 40-120 Sharp's rifle, at the rate of a shot every two or three minutes until every buffalo of the bunch had fallen. Here you could count seventeen skeletons on a

little more than an acre, and near by were fourteen more that evidently fell at the same time. The powerful effect of the strong, parching winds and the intense dry heat of summer had literally stripped the flesh from the bones, but the skeletons lay precisely as they fell. The bones were still held together by a few dried-up ligaments, but were bleached as white as snow. Sometimes we found immense skeletons that were absolutely perfect, even to the tiny carpal and tarsal bones, the size of a hazelnut. Of these dry skeletons, we selected eight of the finest and largest.

Beyond the Red Buttes, we were seldom out of sight of bleaching skeletons, and often forty or fifty were in sight at one time. The skinners always left the heads of the bulls unskinned, and the thick hide had dried down upon the skulls harder than the bone itself, holding the tangled masses of the shaggy frontlet firmly in place until it bleached brown in the sunshine and was finally worn away by wind and weather. Many of these heads were so perfectly preserved, and with their thick masses of wavy brown hair were so fresh-looking, that the slaughter of the millions was brought right down to the present, and seemed to have been the work of yesterday. We could endure the sight of the bones reasonably well, for we expected it; but these great hairy heads made us feel our loss most keenly. At first it was impossible to look at one without a sigh, and each group of skeletons brought back the old thought, "What a pity!"

But there was no time to waste on sentiment. We wanted buffalo, and like the small boy and the ground-hog, we'd "got to get him." Our six-mule team dragged its slow length from the Yellowstone up the Sunday Creek

trail to the top of the big divide between the Yellowstone and the Missouri, and down the north side until we reached Little Dry Creek. Twelve miles up the Creek we came to the LU-bar Ranch, and eight miles beyond it we went into permanent camp, on the edge of the supposed buffalo country. We sent our team back to the fort, and my old friend George Hedley and I began to hunt buffalo.

In that immense country, so bare and inhospitable, so broken up into bad-lands, and so beset by buttes of all sizes and shapes, it seemed like an utterly hopeless undertaking. There were more than a thousand square miles of country to hunt over, and it was merely claimed that there were thirty-five head of buffalo in it, somewhere, provided they had not gone elsewhere. We were forced to admit that if we ever found our game it would be as much by chance as by systematic hunting. Some of the natives said we "might ride six months without ever seeing buffalo, let alone killing any!"

I assert once more that I was born lucky instead of rich. If you don't believe it now, in two minutes more you will.

Just two days after we went into permanent camp and began to hunt, something happened that none of us had ever dared think could, by any concatenation of circumstances, happen to us at all. *We caught a buffalo bull alive!*

I would like to change the subject just here, and leave your imagination struggling with a mighty (and maney) old bison of the olden time, with lassos whizzing through the perturbed atmosphere, horses bracing back on their haunches, ropes singing like Æolian harps, and chunks of mother earth flying heavenward from the heated hoofs

of the terrible bull. But I can't do it. I cannot tell a lie, at least not without being found out in it; so the truth must prevail. It was only a poor little bull calf, less than a month old—a young thing that couldn't leave his mother; but she was able to leave him, and although it was by no means a cold day, he got left. His mother and her friends coolly ran away and left him in the bad-lands to shift for himself or die if he preferred. We found him in a barren hollow between two high buttes, as lonesome-looking a waif as ever was left to the mercies of a cold world.

When he saw us riding toward him, he started to run, but he was weak, and before he had gone a hundred yards we were up with him.* We sprang off and undertook to catch him in our arms, but he pluckily butted first one of us and then another; then he butted the mule Private Moran was riding, and was so generally lively that the cowboy who completed our party, Irvin Boyd, had to throw his rope over him, and haul him in. He struggled and kicked as much as he was able, but the poor little fellow was so thin, and so weak with hard running after his mother, that he was easily tied.

To all of us he was a genuine curiosity. Instead of being dusty-brown, like most buffaloes over a year old, he was a perfect blonde. His thick, wavy coat was of a uniform bright sandy color, and "Sandy" he became from that moment. Although we had not bargained for any

* Four months later, some cowboys caught another calf on the Porcupine Creek round-up. The little fellow was about five months old, and, being abundantly able to travel, he showed a clean pair of heels. It took three fresh horses, one after another, to catch him, and the distance covered was thought to be at least fifteen miles; but, as in nearly every instance of the kind, it came to naught. Owing to overexertion and want of milk, the calf died the day after its capture.

live buffalo, the capture of such a prize called for our best efforts in prolonging its life.

The first difficulty was to get the little fellow to camp without injury. We tried to lead him, but he was so backward about coming forward he would not lead at all. As for driving him, one could as easily have driven a German chancellor. Losing patience at last, George Hedley gathered the little bull up in his arms and started to carry him to our camp, across hill and hollow, a mile and a half!

The pluckiness of this manœuvre astonished the little buff. As his carrier strode manfully through the sage-brush, surprise gave way to passive admiration, and his struggles ceased. But the calf had the best of it, and at the end of a hundred yards George threw up his contract, and called for his horse. With the blankets that were tied behind our saddles, he fixed up a very ingenious pad in the seat of his saddle, and laid the calf across it, with a pair of legs dangling on each side. In this way, he and Private Moran carried the calf to camp, while Boyd and I hastened on to look for the other buffaloes that had so lately been in those hills.

The calf reached camp in good condition, and from that time on was perfectly tame. It refused to drink condensed milk, so the next day we sent it down to the ranch, where Mr. Phillips's milch cow nourished it one moment and tried to kick its brains out the next. It came very near dying, and would have succeeded but for careful treatment. Partly by good luck and partly by good management, we actually got the little beast safely to Miles City, on our return, and took it on to Washington, alive and in excellent health. With an abundant supply

of good food, over two gallons of good milk per day, it grew rapidly, and soon became quite fat.

In order that the little buffalo might grow to be a very big one, we sent him to a farm near Washington to fatten on fresh milk and blue grass. He ate voraciously and grew rapidly, but as has been the case with many other distinguished foreigners, life in Washington proved too rich for his blood.

About the middle of July he ate a great quantity of damp clover, and before any one found it out he was dead. Of course we preserved his skin with great care, and mounted it, so that, even though we lost our live buffalo of great size (to be), we have for our group of mounted specimens a red-haired calf. At the time of his death his age was three months, his height at the shoulders was two feet nine inches, and his weight was one hundred and twenty-one pounds.

Our field-work in May and June of 1886 was really an Exploration for Buffalo, in fact as well as in name, and as such was a complete success. Besides the catching of the calf, we got two old bulls; but, as we had feared, they had begun to shed their winter pelage, and consequently their skins were unfit to mount. Their bodies and hind quarters were as bare as a turtle's back, but their heads and shoulders were well haired. After taking their heads and complete skeletons, we resolved to hasten home at once and return in the fall to collect the specimens we desired. Just as we were hauling in the skeletons, a cowboy came galloping up to our wagon to say that there was a bunch of eight buffalo within a mile and a half of us, and, if we cared, we could easily kill some of them. In declining this offer we begged all the cowboys of that country to

leave those buffalo unkilled until fall, when we would return.

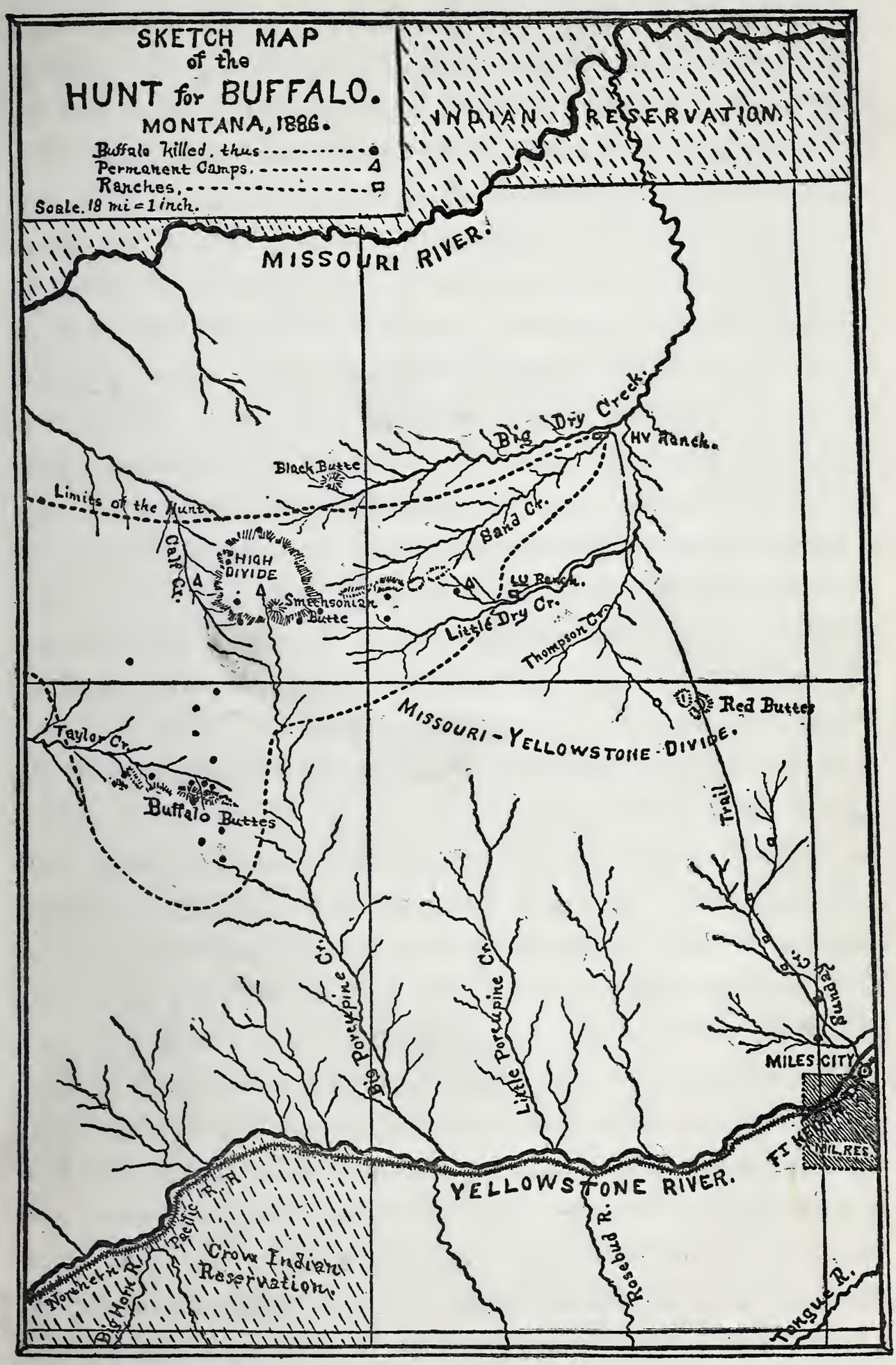
From what we saw and heard, we felt well assured the buffalo then known to be on the high ground around the headwaters of the Big and Little Dry, the two Porcupine Creeks, and Sand Creek would neither be exterminated nor driven out of the country before September. Accordingly the 24th of that month saw me back in Miles City again, this time accompanied only by W. Harvey Brown, a scientific senior of the University of Kansas.

This time we knew precisely the nature of the work before us, though the extent of it was involved in doubt. We hoped to get twenty buffalo, and we hoped to get them within two months, so as to get back on the right side of the Yellowstone before the terrors of a Montana winter should catch us afield. I had previously engaged Irvin Boyd to go with me as guide, hunter, and "foreman," and at my request he had engaged two other cowboys who knew that country—Jim McNaney and L. S. Russell—to take a hand in the hunting. I found them all awaiting me at Miles City, and in thirty-six hours after reaching the starting-point we pulled out for the north side. We had from Fort Keogh a six-mule team to haul us up, a Sibley tent and stove, cooking utensils, commissary stores, and last, but not least, a most excellent cook from the Fifth Infantry, a grizzly old veteran named McCanna. We had in our own outfit ten head of horses and a light ranch wagon that could go anywhere.

The worst feature of all was the absolute necessity of hauling grain into the very heart of the buffalo country to feed all those horses. We took two thousand pounds of oats to start with, and later on we were obliged to send for

as much more. Of provisions, we took two months' supplies of everything except meat, resolved to live on freshly killed game, or starve in the attempt. The quantity of provisions seemed to me unnecessarily large, as compared with a soldier's rations; but I soon found that all ordinary calculations as to the capacity of the human stomach must be declared "off" in Montana. It seemed to me that of all the destroyers of food I ever saw, Montana cowboys and United States soldiers are absolutely unsurpassed, unless it be by the great Eastern tenderfoot. Out of regard for the feelings of my companions, I will not mention the five hundred pounds of flour, fifty pounds of lard, two hundred cans of corn and tomatoes, the keg of pickles, or the two thousand two hundred and forty pounds of wild meat—buffalo, antelope, and deer—we ate in two months. The boys are all rather sensitive on that score, and remarks are not in order.

The fifth day from the Yellowstone found us at Tow's Ranch—the H V—on the Big Dry, ninety miles from town, at the mouth of Sand Creek, which comes down from the southwest. The narrow, level bottom of the Big Dry has a little cottonwood timber in it, and at that time its foliage was as yellow as gold. How pretty it did look, and how merrily the leaves danced and rustled in the bright sunshine! In the most tantalizing way they invited us to pitch our tent under their shade and enjoy the blessings of wood and water to our heart's content. But it could not be. Without wasting a moment, we loaded the six-mule wagon with dry buffalo skeletons and started it back to the fort, stored half of our freight at the ranch, and with as heavy a load as our team could draw, pulled up the Sand Creek trail.



From the Report of National Museum, 1887—Hornaday.

It was our purpose to go to the head of that stream, and beyond it, in case buffaloes were not found earlier. The tract of country which it was necessary for us to hunt over thoroughly in order to find our game was about forty miles long, east and west, from half-way up Sand Creek westward to the Musselshell, by twenty-five miles broad from the Big Dry southward. It included all sorts of country, save mountains, but not one running stream. West of the head of Sand Creek was a lofty, level plateau, about three miles square, which, by common consent, we called the High Divide. It was the highest ground anywhere between the Big Dry and the Yellowstone, and was the starting-point for streams that ran northward into the Missouri, eastward into Sand Creek and Little Dry, and southward into the Yellowstone. On three sides it was surrounded by wild and rugged butte country, and its sides were scored by intricate systems of great yawning ravines, steep-sided and very deep, and bad-lands of the worst description.

In the course of two weeks' hard hunting our hunt had progressed up Sand Creek as far as this High Divide, and to the first stream west of it, called Calf Creek, where we found a hole of wretchedly bad water, and went into permanent camp, one hundred and thirty-five miles from Miles City, as the trail ran. We had laboriously hunted the country on both sides of Sand Creek, but saw no signs of buffalo until the 13th of October. On that date, while one of our cowboys—L. S. Russell—was escorting our second load of plunder across the High Divide, he came upon a bunch of seven buffalo lying in the head of a deep ravine, but although he fired at them several times and chased them two or three miles, they all got away and ran

due south. It was not long before other discoveries confirmed our surmise that the buffalo we were after were in the habit of hiding in the heads of those great ravines whenever they were disturbed on their favorite feeding-grounds farther south.

I will always gratefully remember how Irvin Boyd and I were rewarded in the wildest and most rugged of those ravines, at the close of a long day's ride through the rough country lying to the north of the High Divide. It was the last day of October, windy, cloudy, and cold. We had "struck buffalo" before that, and in two weeks had actually killed ten; but several days had passed since the death of the tenth, and we were getting anxious again. The hunting was done by the three cowboys and myself. Jim McNaney, a splendid shot and a genuine buffalo-hunter, with a record of about three thousand three hundred head, slain for their hides in three years, had killed five of the ten head, while L. S. Russell was credited with three. Boyd and I were behind in the race, and aside from our desire to get buffalo by all possible means, each man was ambitious to keep up his individual score. Boyd and I held many a little confab *sub-sage-brush,* and swore by the great horn spoon that those other fellows should not get any farther ahead of us. We would find buffalo or kill our horses in the attempt. Of course Jim and "Russ" rode early and late to keep their lead, as well as to contribute to the general success.

Well, on that last day of October, Boyd and I set out early and rode northeast from our barren and uncomfortable camp on Calf Creek into butte country that had not been visited for some days. A mile and a half from camp we came upon a herd of antelope, and I managed to kill

a splendid buck, which we wanted for its skin. After dressing the carcass, we spread it out upon the grass, back uppermost, to await our return, and went on. Two miles farther, we came upon another and larger herd of antelope, but I will kindly draw the veil of silence over the events that culminated in our scaring the herd quite out of Dawson County. We rode until noon, halted for half an hour to rest our horses on the sheltered side of a butte about twelve miles from camp, tightened our belts in lieu of luncheon, and then began to ride the side of our circle which would take us back to the tent.

We had planned to wind up our hunt for that day with a ride along the edge of the High Divide, and an examination of the long succession of ravines that such a course would bring to view. By the time our tired and panting horses had climbed to the level of the lofty plateau, and we had carefully scanned with the glass the great stretch of hilly country that lay spread out before us like a relief map, the approach of a dull and sunless twilight warned us that we must hasten on or get benighted. At our feet the steep slope of the divide was cut and furrowed into a succession of great yawning ravines that seemed interminable. The ridges that lay between them were sharp and high, and at the bottom the crooks and turns were so many that a score of buffaloes might hide in them and easily escape our most vigilant watch.

It was so near night that we had given up all hope of finding anything that day, but as a matter of principle we stuck to the hunt. Presently, as we approached a group of three high buttes that formed the landmark we were making for, we came upon the trail our wagon had made when it crossed over, and also something else much more inter-

esting. It was the tracks of two buffaloes! We were on the alert directly. The tracks led in the direction we were going, and presently we saw the prints of iron-shod hoofs close beside them.

"Look at that!" said Boyd. "Blamed if them other fellows an't atracking up these yere very buffalo!"

"It looks like it, sure enough. But we haven't heard a shot, so they haven't found them yet."

It is needless to say we were somewhat excited. We followed the trail whenever we could see it, but on that hard turf it was only once in a great while that a hoof-print was visible. We watched the heads of the ravines down on our right, and hastened on to cover as much ground as possible before it should grow dark. As we rode up a grassy slope which led up to the base of the "Three-peaked Butte," we came suddenly to a point from which we could see a long distance down a fearfully deep and rugged ravine. We looked down it, and on the steep side, three hundred yards away, saw plainly *two buffaloes!*

"Git down! git down!" exclaimed Boyd, in a stage whisper, as he fell on his horse's neck. I got down, and we instantly wheeled our horses off to the left and rode back again out of sight of the black-looking animals. Once out of their sight, we spurred into a swift gallop and swept down the slope, around a little butte, off to the left, and then along a ridge that ran down parallel to the ravine which sheltered our game.

"We're far enough now!" whispered Boyd at last, as he halted, swung himself quickly out of his saddle, and dropped the reins of his bridle upon the ground. This is the Montana method of tying a horse. If the reins are dropped, the horse can not walk or run without getting a

foot caught, and thus he stops himself. We left our horses standing, and hurried across to the edge of the ravine which held our fate. The wind was in our favor, and we hoped to find the game still there.

With guns in readiness, we stole softly forward to a rocky point that afforded us a view. If the buffaloes caught sight of so much as a hat-brim, they would be off like an express-train. Cautiously we looked up and down, and there they were below us, standing quietly. We backed out, made a little detour under cover of the ridge, and came out higher up, almost opposite our game. Only the two were to be seen, a cow and a yearling calf; but there might be a big bull at the bottom of the ravine, out of sight.

The cow was to the left of the calf, and since I was to the left of Boyd, she was mine. The pair was about two hundred yards away, and the light was very bad. We lost not a second in getting our rifles in shape to fire.

"Are you ready, Boyd?" said I.

"Yes, all ready," he replied.

"Then here goes," said I, and we both fired.

"Mine's down!" I cried triumphantly, as the old cow fell over broadside the instant the rifles cracked, and lay there kicking. The back-bone had been struck.

"Mine ain't down yet, blast it!" said Boyd.

As he fired, the calf rushed forward down the bank, and was out of sight directly. In an instant I had reloaded, and a few seconds later a buffalo ran up the bank to where the cow lay kicking, as if to take a look at her.

"By Jove, there's another one!" I said, and as Boyd was not ready I drew a bead on the newcomer and banged away, determined to kill all that came in sight. Standing

by himself, he looked so large I thought it must be a third buffalo, but my eyes deceived me. It was only the calf. He fell in his tracks and never rose again.

I doubt if any buffalo ever fell in a wilder spot. The rugged and scarred bare walls of the ravine sloped steeply upward like the sides of a letter V for a hundred feet on one side and two hundred on the other, to the top of the "Three-Peaked Butte," while below the ragged chasm extended in similar form as far as we could see. In getting those skins out the following day, we had to carry them up to the top of the ridge and along the rugged crest for nearly a quarter of a mile in order to reach the wagon.

This sudden turn of luck was delightful, and we rejoiced greatly over our opportunity to make the other boys envious. But our success lacked something in flavor. One of our buffaloes was a calf, and the cow had a flesh wound in one of her hind legs, which showed that some other fellow had "drawn first blood." That was a sad blow, and for a time we felt a little dispirited. But we decided to "josh" Jim and Russell a little, at all events, and not tell any more than we were obliged to.

We disembowelled our buffaloes and started for camp, four miles away, just as it began to grow dark. A raw, cold wind swept through the bad-lands full in our faces, and we were glad to catch the first glimmer of the beacon light that Brown and McCanna always hung out whenever any of us failed to get in before dark.

While we were unsaddling in front of the tent, and the cook was getting our food up from the fire where he had faithfully kept it hot for us, we quietly told him and Brown just what our luck was. But we had great fun "joshing"

Jim and Russell. We found them smoking their after-dinner pipes and playing draw-poker.

"Well, what luck?" they demanded.

"Two buffs this time," we answered carelessly. A pause, while we helped ourselves to baked beans.

"What were they like?" asked Jim, meekly.

"A bull and a cow," I answered with nary a smile.

"Did the bull have a nice head?"

"Yes, he had a beautiful head"; which was true enough.

Our two rivals looked very sober. Boyd looked at me and smiled in spite of himself; and although I managed to preserve a serious air, the others became suspicious. If they asked me whether the cow was wounded when we found her, what could I say without a full confession?

I believe Jim must have divined my thoughts, for he demanded directly:

"Had either one of 'em been shot before?"

"No," I answered readily, "neither of 'em had ever been shot *before.*"

The cow had been shot *behind,* and we were saved!

But Boyd and Brown laughed right out.

Jim and Russell were on the *qui vive* at once.

"Now, fellers," said Jim, briskly, "I know there's something queer about them buffalo. Blamed if I believe you killed any at all!"

"Yes, we did, Jim, honest injun, just as I tell you. We'll show you their skins to-morrow to prove it."

"Well, what's them fellers a-laffin at, then?"

"Why," chimed in Boyd, "I'm a-laffin at the way we came right along in you fellers' tracks, and saw buffalo that you didn't see at all!"

This was a terrible blow to our rivals, and although

they tried to prove an alibi, Boyd held to the point, and demonstrated that we had followed them by only half an hour, to the very point where our game was discovered.

Although we did not crow over our rivals, for the unwritten etiquette of the hunt sternly forbade anything like that under any circumstances, we maliciously allowed them to feel badly over our success. We even went so far as to make them believe that we had discovered those animals and chased them some distance before stalking them in the ravine. I had to own up that the bull was only a bull calf, but we never told them about that wound in the cow's hind leg, never.

In days gone by, hunting buffalo was tame work, owing to the great abundance of the animals and their stupidity. There was no more glory in killing an old bull than in wringing a rooster's neck, for familiarity had bred contempt. But with the approach of extermination, and "the struggle of the species to harmonize with its environment" (by the kind permission of the evolutionist) conditions have changed, and in 1886 the chase of the buffalo was sport of the very toploftiest kind. If you don't believe it, get on a cayuse, ride up and down for a week or two through the bad-lands until you find one, then see if you are smart enough to kill him. Until you have learned by sad experience what to expect, I will back the buffalo to get away from you three times out of five.

Those that still survive have been chased and shot at so often that they are ready to run on the very shortest notice. Constantly on the alert, they almost always see the hunter before he sees them, and then away they go. Sometimes the first sight of your game is across a mile of bad country, and the fact that it is headed straight from

you, and running at full speed, is proof positive that it is running away from you in particular. If you have with you an old hunter like Jim McNaney, he will teach you that it is folly to ride straight after, for the horse is yet unborn that can carry a rider across Montana bad-lands up to a buffalo that has a good, long start. Under half a mile it is sometimes possible; but Jim's plan, which never failed *him* at least, was to apparently abandon the chase, make a wide circuit, ride mercilessly, and, in the course of three or four miles, cut in ahead of the buffalo, and lie in wait for him behind the crest of some ridge. It takes hard riding, but it can be done without killing a horse. Once L. S. Russell, on his pet horse, Selim, an ungainly old beast with a gait like an elephant, but staying powers like a steam-engine, actually overhauled, in a fair stern chase, an old solitary bull who had a start of half a mile, and killed him.

We had great sport on that hunt, because we couldn't help it. In our eagerness to succeed in our task, the sad fact that we were hunting the last representatives of a mighty race was for the time being lost sight of. The difficulties we encountered in finding and killing our specimens wrought up our interest in the hunt to the highest pitch; and if ever trophies were earned, those were, twice over. It has often been my luck to be compelled to hunt animals that were hard to find, and hard to kill when found; but none of them ever cost so much hard work per head as did those same buffalo.

But for the fact that we had marvellously good fortune, it would have taken us till midwinter to make our success complete, and we would have almost perished in the terrible weather that followed. As before stated, we saw the

first buffaloes on the 13th of October. On the day following all four of us took the trail of the band that Russell started, followed it due south about twenty miles, and finally sighted it with the field-glass just at noon. The original bunch of seven had been joined by an equal number, and they all lay on the level top of a little butte in the bad-lands, sunning themselves and resting. We sneaked up to within two hundred yards of them, fired a volley at them as they lay,—and did not even kill a calf! Instantly they sprang up and sped off at astonishing speed, heading straight for the sheltering ravines around the sides of the High Divide. We had a most exciting, and likewise dangerous chase after the herd, across a vast prairie-dog town, honey-combed with holes just right for a running horse to thrust a leg in up to the knee and snap it off like a pipe-stem,—and across fearfully wide gullies that either had to be leaped or fallen into. Jim McNaney killed a fine old bull and a beautiful two-year-old "spike bull" out of this bunch, while I managed to bring down a cow, and, in partnership with Jim, another fine old bull, making four that day, all told.

Two days later when we were on the spot with the wagon to skin our prizes and haul in the hides, four more buffaloes were discovered within two miles of us, and while I wrestled with the skin of my big bull to keep it from spoiling, the cowboys went after the live buffalo and killed them all. They consisted of two fine bulls, an old cow, and a yearling. The finest bull fell about eight miles from our camp, and when we got to it with the wagon at noon the next day, to prepare both skin and skeleton and haul them in, we found that during the night a gang of coyotes in human form (Piegan Indians) had robbed us of our hard-

earned spoil. They had stolen the skin and all the eatable meat, broken up the bones to get at the marrow, and cut out the tongue. And to injury the sneaking thieves had added insult. Through laziness, they left the head unskinned, but on one side of it they smeared the hair with red war-paint, the other side they daubed with yellow, and around the base of one glossy black horn they tied a strip of red flannel as a signal of defiance. Of course they had left for parts unknown, and we never saw any of them afterward.

The ninth buffalo was the one Russell overhauled in the stern chase already mentioned, and the tenth was discovered by Boyd and Jim McNaney, feeding in a ravine, and killed at long range by the latter. Then came the two that Boyd and I fell foul of on the last day of October, which made two more than half our required number during our first month in the field. But it happened that the most exciting episodes and the grand prizes were reserved for the last half of the hunt.

II

OUR LAST BUFFALO HUNT

(CONCLUDED)

By the 5th of November the stuff in the water-hole in Calf Creek, which had previously done duty as water, became so thick with mud and filth that we could drink it no longer. And then, to put the case in cowboy language, we "took a tumble to ourselves," or, in other words, resolved to turn over a new leaf. We resolved to move camp, and pulling up stakes forthwith we moved across a corner of the High Divide, and wound our way down to the bottom of a little canyon on the southern slope. At the very point where it gathered in the waters of a score of steep gullies and started them down toward the Yellowstone under the sounding title of Big Porcupine Creek, we unloaded our plunder and made a camp.

At the foot of a perpendicular bluff of "hard-pan" Jim McNaney had discovered two days previously, while returning hot and tired from a successful chase after buffalo, a deep pool of delicious water, without alkali and inexhaustible in quantity. As it lay there so clear and pure, reflecting the blue of the sky in its liquid depths, I declare it seemed worthy of adoration. He who never has quenched his thirst for days and weeks with liquid mud and alkali can in no wise understand our feelings toward that crystal pool.

The scarcity of water in Montana is, it seems to me, the greatest hardship the plainsman has to suffer. I will never forget one little episode of our hunt, which made us sym-

pathize with poor Tantalus as never before. One warm day in October we took the wagon and set out southwest for a four days' trip to the Buffalo Buttes, our lucky hunting-ground. Jim and Boyd rode on to hunt buffalo all day, while I undertook to pilot the wagon twenty miles across country, and take my chances on hitting a miserable little water-hole that they had seen and described to me. Brown drove, and as much by good luck as good management we hit the water-hole fairly and squarely, about half an hour before sunset. It was in the dry bed of Taylor Creek, but, alas! only a single pailful of water remained. There was no other water within five miles. Well, before unhitching, I took the pick and shovel and hug a hole in the only moist spot there was. Glorious! Water ran into it right liberally.

"Do you strike any?" called Brown, anxiously, from the wagon.

"Yes, lots of water. Unhitch the horses, and I'll dig a deep hole."

I dug. There was sand on top; then under that a layer of shale. It looked a little suspicious, but water ran in from all sides in little streams, and thanking our lucky stars, I dug generously. At last, after no little labor, I had a hole that would hold over half a barrel, with an inclined plane leading down so that our thirsty horses could get to it.

While we were busy making camp, waiting for the water to run in and settle, Jim and Boyd arrived, with two hind quarters of antelope, and a piece of hump meat from a fine old buffalo bull they had killed that afternoon, number ten.

"Have ye got water?" was Jim's first word.

"Yes; oceans of it. Come on," and picking up the sable old coffee-pot, I started to lead the way.

Jim's eyes sparkled when he saw the hole brimful of clear, cool water.

"By Jove, we're hooked up, ain't we? Lord, but I'm thirsty. Let's fly at it!"

He dipped up a big cupful, clapped it to his mouth, and began to drink. The first swallow went down, but the next flew out upon the ground. Jim's face was a picture.

"My God! That's clear alum! It's just horrible. Don't taste it, or ye'll wish ye hadn't."

One cupful of that water would have watered a thousand thirsty men. It tasted just as if some one had dissolved a pailful of Epsom salts, five pounds of alum, and two ounces of quinine in that miserable hole. I never tasted a more horrible mixture, and the bitterness held its own in one's mouth for half an hour. The horses refused it, in spite of their consuming thirst, and although Jim tried desperately to make coffee with it the result was a total failure. He could as easily have made coffee with a canful of kerosene. Taking the empty coffee-pot on his arm and swearing that we "*must* have water," Jim mounted his tired horse, Vic, and rode off down the course of the creek. He was gone over an hour, and came back without a drop of water, but foaming with wrath, and swearing like a cowboy.

How did we get along? Well, we had in our grub-box a quart can of tomatoes, which was mostly juice, and we partly quenched our thirst with that for the night; and the next day, about ten o'clock, we reached water.

Our camp at the head of the Porcupine was most romantically situated, and as for the necessities of camp

life it was almost perfect. Two hundred yards from the pool of water we pitched our fine new Sibley tent close to the southern face of a perpendicular bluff that formed a semicircular wall around us, and like a sheltering wing protected us at all times from the cold winds that swept across the bleak level of the High Divide. We banked up the tent all around, and in the head of a deep gully close by that had just started to eat its way up through the level ground we made a very comfortable "dug-out" to serve Mack as a kitchen, dug an ample fireplace at one side of it, and roofed the whole thing over with poles, gunny bags, rubber blankets, and dirt. In front of our tent was a beautiful bit of smooth ground of an acre in extent, sloping gently from the foot of the bluff to where the stream abruptly cut it off. On this convenient ground we used to feed our ten horses their oats twice a day, load and unload our wagon, spread out fresh buffalo-skins and work on them, and also stack up our spoil of skins, skeletons, and hind quarters of buffalo meat. Half a mile below we found a few dry cottonwood logs that served us for firewood as long as we remained.

Had we been horse-thieves or hostile redskins, instead of peaceful hunters, we could not have chosen a better-concealed spot for a camp. There was only one "draw" leading down which afforded a practicable route for the wagon; and one night it took two of our cowboys half an hour to find the tent from the high ground above. From every direction save one there came down great precipitous gullies, and from our tent we looked due south down the rugged little canyon for two miles or so to where the view was abruptly cut off by a lofty isolated butte. It was a perfect cone about five hundred feet high, which from

the east, south, and west is a conspicuous landmark for many long miles. The cowboys of the Acorn Ranch say it is plainly visible from a ranch forty miles down the Porcupine. Strange to say, it was absolutely nameless, so far as we could learn, so the cowboys insisted on naming it Hornaday Butte, instead of the "Smithsonian" of my desire.

The evening we made our camp on the Porcupine, which proved to be our last permanent camp, an immense flock of sage-grouse flew down to drink at the pool, and in stupid wonder settled within gunshot of the tent. We could have killed twenty, I know, and, if the truth must be told, we did kill twelve, and took their skeletons. Perhaps this proceeding was unsportsmanlike, but it was very necessary, for we wanted twenty sage-cock skeletons.

The two young buffalo cows that Jim McNaney killed just before we moved over to Porcupine Creek seemed to be the last of the Mohicans, for during the following week we scoured the country for fifteen miles in three directions without finding so much as a hoof-print. At last we decided to go away and give that country a rest for a week, so that it might fill up again with two or three buffaloes. Leaving McCanna and West to take care of the camp, we loaded our blankets and a small assortment of general plunder into the wagon, and pulled about twenty-five miles due west to the Musselshell River.

We found a deep valley and a fine stream of crystal-clear water rippling through it over a pebbly bed, heavy cottonwood timber and willow copses along its banks, which were full of white-tailed deer. In the wild, weird and rugged brakes, covered with evergreen jungle of cedar and pine, bordering the river-bottom on both sides

and extending back for miles, we found a goodly number of blacktail deer, and tracks of elk and grizzly.

But I dare not go any farther with that memorable experience, for if we should once get started upon it the business of the hunt might be eclipsed by its pleasures. We all fell in love with the locality, and in comparison with the hard work, scarcity of game, and lack of scenery in the buffalo country, added to its utter poverty in wood and water, our little hunt on the Musselshell seemed like a genuine holiday pleasure-trip.

We tried our best to track up elk and grizzlies, but they made themselves so scarce we never got sight of either. We killed two deer and three wild geese, and feasted like lords—no, like hunters, for lords never enjoy such feasts except when they go ahunting. We built enormous camp-fires, and for once enjoyed the luxury of having plenty of good dry firewood. That was in November, and the clear air was stinging cold. Once we saw the water in our pail freeze over solidly in ten minutes while it stood within four feet of a generous camp-fire. Having no tent we bivouacked in the open, with the mercury at six degrees below zero, and enjoyed it past all telling. But we found no buffalo on either side of the river. Those halcyon days had to end abruptly five days after they began; and vainly wishing that we could stay there a month we returned to our snug camp on the Porcupine.

We took back with us half a wagon-load of specimens to be cared for, including the half-skinned deer, seven sharp-tailed grouse, two geese, eleven sage-grouse, nine Bohemian waxwings, and a magpie. All of these birds had to be skeletonized, and the deerskins had to be finished and made up—a deal of work for one day, I assure you.

The day following our return I was literally compelled to remain at camp and work on the specimens. The three cowboys went off to hunt buffalo, of course, and after Mack had fled to the Cook's Delight—otherwise known as the dug-out—Brown, West, and I took absolute possession of the tent, and held high carnival. Out of a chaos of dead bodies, skins, bones, flesh, hair, and feathers, we evolved a fine orderly heap of specimens. But alas! while we were doing it Jim and Boyd performed the most brilliant exploit of the entire hunt, and I was not there even to see it done.

They started early, and rode hard for our historic ground, the Buffalo Buttes, as, by common consent, we had named the group of buttes twenty-two miles southwest, where we found our first buffalo, and close to which we had up to that time killed nine of our fourteen head. Even to go there and return the same day was a hard day's work for both horse and rider, the ground was so hilly and "heavy." But the Buffalo Buttes was the charmed spot for buffalo, and thither went Boyd and Jim that day, as fast as their horses could carry them.

They reached the Buttes about noon, and just as they were heading for the pass that lay between the groups of buttes Boyd's sharp eyes saw some dark objects far ahead, which he declared were buffalo. The glass revealed the truth of his assertion. There were four buffalo lying down in a hollow. The hunters at once drew to one side out of sight, and attempted to "come a sneak" on their game, as stalking is nearly always called in Montana. But the game was too wary by half. As the hunters were hurrying forward four burly old buffalo cows suddenly dashed into view in the pass a quarter of a mile away, heading

for the High Divide, and almost directly toward the boys. Instantly the hunters spurred off to the left, sprang to the ground, and took positions behind the crest of a low ridge, as close as possible to where the game would pass.

It was down-grade, beautiful ground to run over, and the cows dashed by like steeplechasers. The moment they came within range the boys opened fire, and Jim's third bullet caught the leading cow in one of her neck vertebræ. She turned a complete somersault, like a rabbit, and landed squarely on her hump with terrific force, legs in air. The force of the fall seemed to completely knock her life out, for she rolled upon her side and died almost without a struggle.

Meanwhile the boys flung lead after the other three cows, and although one was knocked down with a broken hind leg she promptly scrambled up again and ran on. A third cow was also visibly wounded, and while there was no telling how many body shots they all had, they all got away, and headed straight as an arrow could point for our camp. As in every previous instance, they ran for the shelter of the ravines.

The cowboys sprang into their saddles, and started in hot pursuit. Their horses had already made over twenty miles over heavy ground at a good pace, and were anything but fresh for the effort that lay before them. But that made no difference. Those three cows *must* be overtaken, even though both horses should drop dead the moment it was done. For the first three miles the country was as open as a race-course, and there being no chance for strategy the only thing was to ride hard, straight after the game. As soon as they got into the hilly ground north of Taylor Creek they saw one of the cows leave the others

and make off alone toward the right, a sure sign that she was badly wounded. Boyd at once set out to make a detour and cut in ahead of her, leaving Jim to follow the other two. Twelve miles from the starting-point he got ahead of her, lay in wait behind a ridge, and when she came up killed her with a shot through the lungs.

Six miles beyond the spot where the second cow fell Jim overhauled another in the bed of a little creek, and brought her down to stay; but the fourth one again got away and kept on northeast, which took her past our camp, within a mile of us. Boyd joined Jim again soon after the death of number three; but by that time their horses could run no longer. Leaving Jim to skin his cow and dress the carcass so as to keep the meat from spoiling, Boyd took both horses and rode to camp, then only two miles away, to get fresh mounts. With a fresh horse under him he led another out to Jim, and away they flew after number four.

She ran up into the High Divide, crossed it, and was well down in the ravines on the north side, four miles beyond our camp, when the cowboys found her, headed her off, and brought her down. It was then only three o'clock, and they skinned her and returned triumphantly to camp long before sunset. The last cow of the four lay, as nearly as could be estimated, twenty-five miles from the first one, and only those who have tried to follow a swift-running animal across a labyrinth of ravines and hills that offer a thousand and one chances for the game to give the hunter the slip can appreciate the really wonderful feat accomplished by those two boys in the death of all four of those cows. They were "rustlers" of the "swiftest" kind under all circumstances, but more especially when chasing

buffalo. Jim was the best shot and the champion hunter of our outfit, and he killed as many buffalo as all the rest of us together, just half of the whole number.

The horses the boys rode first that day were like walking carcasses. When we found them and took them in hand they were wringing wet, with heads hanging, backs humped up, eyes half closed, and shivering as if they had the ague. We rubbed them down at once, put blankets on them, and treated them like thoroughbreds. Had they been Eastern horses both would have died that night; but they were made of tougher stuff. After a week's rest and feeding they were once more as fresh as ever.

Those cows brought our number of buffalo up to eighteen, and made us think about the possibilities of getting home. The next day we started out with the wagon to finish the first part of the business with the cows. Jim and Boyd guided us to cow number two, just half-way to the Buffalo Buttes, and, leaving Harvey Brown and me to take off her skin and carve out her complete skeleton in the quickest time on record, they went on to look for more buffs. We did our work in a tearing hurry, for twelve long miles lay between the end of it and cow number one, and two more beyond that to our camp-ground. As soon as we finished we salted the skin, and leaving both it and the skeleton to be picked up on the return, hastened on with the empty wagon. Brown drove, plucky worker that he was, and I piloted. Just half-way to cow number one we came suddenly upon Jim and Boyd, who were off their horses and "monkeying" with something down in the bed of a grassy hollow.

"Number nineteen!" shouted Jim cheerfully as we hove in sight.

As sure as I live, they were just in the act of cutting SIBO—our brand, "Smithsonian Institution Buffalo Outfit,"—and may its memory live forever!—in the thin, cutaneous muscle that lined the inside of a fine cow-skin, just as old buffalo-hunters used to mark hides with their initials in the destructive days gone by. The boys had discovered the cow strolling toward them across the "bad-grounds," and they waylaid and killed her with neatness and despatch. Talk about *luck!* Why, the boys swore roundly that "such elegant luck was never seen before in *any* country!"

We tumbled that skin into the wagon, in order to take a different route back to number two, and by the time the wagon arrived at the carcass of number one we had her skin off and ready to put aboard. A few minutes later we rattled through the pass, turned down a big hollow on the other side of the buttes, which afforded a practicable wagon route, and just at sunset reached our old camp-ground beside the spring that had so fatally attracted so many buffalo to that region. We cut through four inches of ice to get at the water, but there was no snow on the ground, and so we never thought of the cold. We cooked and ate a bountiful supper, then Jim brought out his mouth-harp, and for an hour we listened with rapt attention to its charming music. I say "charming," because that is the word. Besides being a fine shot and a skilful hunter, Jim enjoys the unquestioned reputation of being the champion mouth-organist of all Montana. I never before dreamed that such really delightful and even high-toned music could, by any process, either patent or otherwise, be evoked from such a cheap and insignificant-looking little instrument.

Although the night was so searchingly cold that the cowboys had to get up and spread the two fresh buffalo-hides over their bed to keep themselves warm, the morning was as fine and clear as the finest of its predecessors. As we prepared for a start homeward, I said:

"Now, boys, I'm going to let some of the rest of you pilot the wagon to-day, and I'll take a little hunt for a change. I want to kill another big bull before this thing is over."

Boyd cheerfully volunteered to stay by the wagon, and with Jim for a companion I rode off west into a tract of bad-lands that had haunted my mind all the previous day. I told the boys I felt it in my bones that there were buffalo over there. We had gone three miles or so, and were leisurely riding up the bed of a grassy hollow that had very steep sides, when we suddenly rounded a little point and came upon a huge old buffalo bull. The instant he saw us he wheeled and dashed out of sight behind another point two hundred yards away. We galloped after him pell-mell, and got to the head of the hollow just in time to see his hump disappear on the farther side of a ridge.

Jim was in advance of me, and headed his pony straight for a narrow ledge that led up the steep bank and out of the hollow. But just at the bottom of the ascent his pony suddenly shied at a yellow boulder and leaped off to one side. Seeing the way clear, I spurred forward, and my stout little sorrel quickly scrambled up the rocks, leaving poor Jim cursing and kicking the stupid beast he bestrode. The moment we got upon fair ground I urged my horse to the top of his speed, hoping to overhaul the buffalo immediately, and thus save a long, stern chase.

When we got to the top of the hill, the old bull was

just disappearing in the next ravine. On we dashed for two hundred yards farther, then I pulled up short, slid to the ground, and prepared for a critical shot. I was sure to get one shot at him, and I had an idea that when he got fairly out of the hollow, he would pause a second or two to look back. I determined to stake my chances on his doing so, and not fire into his hind quarters as he went up.

Almost the instant I reached the ground the old fellow hove in sight on the opposite side of the ravine, scrambling up with wonderful nimbleness and speed for such a huge animal. In a few seconds he reached the top of the bank, wheeled a quarter-way round, presenting his enormous bulk nearly broadside, and looked back at me. The morning sun shone full against him, and he certainly did look fine. With a quick but exceedingly careful aim at his shoulder, back of which lay his lungs, I banged away. The distance was somewhat over one hundred and fifty yards. He gave a great flinch as the ball struck him; and when he wheeled and started to run, I saw, or thought I saw, that his left fore leg was broken.

As he disappeared behind the hill I fired again, but my bullet was too late to do any good. In order to hit him I held so close to the crest of the hill that my bullet struck the ground instead of the buffalo, and, with a ricochet, went whizzing off over the ravines without harming a hair. By this time Jim was up, and we galloped after the quarry as hard as we could go. The old fellow was mortally hurt; for in two hundred yards more we overhauled him, still running, but not very fast. As he saw we were upon him he fell into a walk, limping badly. Presently he stopped and faced us, and Jim shouted out to me not to go too close. But it was unnecessary. He staggered and fell, and,

lurching heavily upon his side, stretched out upon the ground, and soon breathed his last. The ball had broken his left humerus, and also gone through his lungs.

He was the only bull killed on the entire hunt with a single shot. It was the 20th of November, precisely two months from the day good-fellow Brown and I left Washington to get twenty buffalo, if possible, within two months, if possible; and this was the twentieth buffalo. Theoretically, the hunt was over.

While Jim galloped after the wagon, and brought it back to take the skin aboard, I measured and sketched the old bull to my heart's content. He was a perfect beauty, and as grand as he was handsome. I thought him the largest of all until we put the inexorable tape-line upon him, and found that his height was five feet six inches—the same precisely as that of Jim's finest bull. That was really too bad, but it couldn't be helped.

As if to warn us that, having realized our highest anticipations of success, we had best tempt the fates no farther, it immediately began to grow cloudy and dark, windy and bitterly cold. We made for camp with all speed. Jim and I got there just at dark, in a driving snow-storm that had swept down upon us from the northwest. But the wagon got no farther than cow number two, only half-way. Brown and Boyd again salted all the buffalo-skins they had in the wagon, rolled them up, and covered the load as well as they could. Then they took out the horses, saddled one for Brown to ride, packed the bedding on the other, and set out to make the best time possible to camp. The beacon we put up at our cairn on the Divide enabled them to find where camp lay, and, to our great relief, they got in safely about eight o'clock.

During the next forty-eight hours we had "a spell of weather," and we had it bad. It was a regular Montana blizzard; not nearly so bad as they sometimes are, I'm thankful to say, but bad enough for all practical purposes. The sky was like a sheet of lead; it snowed hard, and the snow was swept along in blinding gusts, with which neither man nor beast could do aught but shelter from. Every hour of the day we congratulated ourselves on our wisdom in getting into the sheltered depths of that canyon, close under the lee of that bluff. Had we been in any of our previous camps, we would have had a tough time of it. The cold itself was not so intense; but it was the rude manner of it that was so objectionable.

During those days we spent the time cramming firewood into the roaring little Sibley stove (may Heaven bless the inventor of it!) and feeding oats to our storm-beaten horses. The poor brutes huddled together in the bottom of the canyon, tails to the storm, pawed down through the snow occasionally to get a few blades of grass, and then tramped back through the drifts to the camp, where the sound of impatient hoofs on empty feed-boxes always reminded us of our obligations to our faithful companions.

During that stormy week we amused ourselves by playing draw-poker for gun-wads, and hearing Jim play the mouth-organ, eating venison and buffalo meat, and drawing the most astonishing pictures of buffalo that ever saw the light of day. At odd intervals I used to get out a notebook and quiz Jim about buffalo and buffalo-hunting in the olden time, when they "once roamed in vast herds," and so forth. And this reminds me that while the storm is raging it is a good time for the setting forth of a few dry

facts and figures in regard to the extermination of our bison. It is rather a mean thing to do, to take advantage of the reader the moment I get him cornered; and if he would rather take his chances out in the blizzard than in the tent with my figures beside a roaring Sibley stove, why then I suppose I must try again on a colder day.

Up to 1866 the whole of the great Western pasture region from the foot-hills of the Rocky Mountains eastward to the borders of civilization, and from the Saskatchewan to the Staked Plain of Texas was occupied by buffalo. Within our own Territory the number of head alive in 1868 must have been about eight millions. Even as late as 1868 Mr. William Blackmore declares that in making a journey of one hundred and twenty miles from Ellsworth to Sheridan they passed through an almost unbroken herd of buffalo. In those days great tracts of country would be literally black with buffalo, and it seemed as if they could never be all "killed off."

When the Union Pacific Railway was built from Omaha to Cheyenne, in the years 1886-7, it cut through the centre of the great buffalo-range, and from it as a base of operations the hunters swarmed north and south, slaying as they went. Thus was the great herd cut in twain never to be reunited. The Staked Plain of Texas presently became the geographical centre of the southern herd, and Glendive, Montana, that of the northern. In a short time the building of the Atchison, Topeka, and Santa Fé and the Kansas Pacific Railways thoroughly opened up all parts of the southern buffalo country, and in 1879 there arose a demand for buffalo-robes that proved fatal to the species. The war of extermination began immediately, and according to the statistics that have been gathered and

published by Colonel Dodge, the years 1872-3 and '4 saw the destruction of over four million three hundred and seventy-three thousand seven hundred and thirty buffalo on the southern range. Thus was this great herd slaughtered out of existence in about three years' time. The survivors sought refuge in the desolate wastes of the Staked Plain; but even there the relentless hunters still pursued them, when cow-robes sold for only one dollar and twenty-five cents each, and the bulls were slaughtered for skins that were worth the paltry sum of only sixty-five cents. That was bad enough, and entirely too bad, but if I could call up before you a vision of the hundreds of thousands of dead buffalo that were heartlessly slain for their tongues, or their humps, or for "sport" (!) alone, you would sicken at the sight. Never in the history of the whole animal kingdom has there been such another bloody and cruel carnage, or one that yielded so little in proportion to the total value involved.

In 1876 the northern herd was probably twenty times as large as the southern, and covered twenty times as much territory. It was estimated by the buffalo-hunters that there were five hundred thousand buffalo within a radius of one hundred and fifty miles of Miles City, Montana, alone, and that the northern range contained over a million head.

The Northern Pacific Railway was opened for traffic from Glendive eastward in 1880, and the buffalo-hunters made an assault in force on the northern herd. Buffalo-hides were shipped eastward by the railway and the Missouri River by tens of thousands, until 1884, when the work of extermination was complete. In 1885 not a single fresh hide was in the market, and in the year following

only two rewarded the inquiries of the buyers. The buffalo were gone forever, not only from the United States, but from the British Possessions as well.

What was to me *the* crowning episode of our entire hunt occurred while we were waiting for the wagons that were daily expected to arrive from Fort Keogh, to haul us back to civilization. By the 23d of November the storm had so much abated that Private West decided it safe to start for the fort with our request for transportation, so he went. The day following it snowed still more; but although it presently cleared off, there was so much snow on the ground and in every *coulée* that for a long time buffalo-hunting was quite out of the question. We tried it several times, but the drifts and snow-filled gullies were too much for us, and we were forced to wait for it to melt off a little.

It was not until the 5th of December that the snow had gone off sufficiently to permit an extended hunt, and then Jim and I discovered that we were each animated by the same desire, viz.: to make one more trip to the Buffalo Buttes, positively the last appearance and final farewell performance.

I said: "Let's put a pack on the Digger, camp over there, and come back the next day if we don't strike buffalo."

"I go ye," said Jim promptly. "Let's light out to-morrow morning by daylight."

It was so agreed. Boyd had gone down Sand Creek to meet the wagons, and Russell had to make a trip to the N-bar line camp to borrow some grub, or we might have had company. The next morning Jim and I got up early, packed my bed, some grub, and a little oats on the Digger,

and set out. I rode my "top horse," old Brownie, and Jim rode his brown pony. He led the Digger, and I rode behind to whip him up. We went down the canyon, climbed up out of it just opposite the Smithsonian Butte, and then bore away straight for the Buffalo Buttes. The snow made them seem much nearer than usual, but they were as far as ever, all the same, if not farther. We cautiously picked our way down through the bad-lands, crossed the head of Calf Creek, went over a little ridge, and then crossed the head of the McGinnis Fork of the Porcupine.

To our great joy we found the bad-grounds frozen; and as there was not much snow on them we fared finely. In dry weather those bad-grounds are like loose sand, into which a horse's feet sink hoof-deep at every step. We crossed the crest of the Divide in the bad-grounds, and once more our favorite landmark was in sight.

We had crossed two or three ridges on our way down the farther slope of the Divide, when, just as we got into a hollow, all the while on the keen lookout for game, we suddenly espied, two hundred yards to our left and behind us, the light-brown humps of *three buffs.*

"Jim! Jim! Just look yonder!"

We pulled up short, jumped off, and saw that the buffs had seen us, for they started off at a slow trot. We both made a running stalk up behind some clumps of sage-brush, and when we got to them turned loose. One of the buffs was an *immense* old bull, the next largest was an old cow, and the third a two-year-old. I fired at the bull, Jim blazed away at the cow, and then they made off in good earnest. We poured it to them as they ran up a little hill to the east, and got in two more shots apiece. At the last shot the cow fell flat, and lay there, kicking madly.

"I've got one down, partner!" cried Jim.

"Good for you, old man!"

The old bull and the young cow ran over the hill and disappeared, and then we rushed for our horses. While Jim was nervously endeavoring to tie the Digger to a sage-bush, I shoved some more cartridges into my Winchester and mounted my horse. To my everlasting credit I have it to say that I *waited,* fully half a minute, for Jim to get ready, so that we might start fair. Then we went.

Heading old Brownie straight for the point where the last buffalo disappeared, I gave him the reins and jabbed him smartly with the spurs. My great hope was to overhaul that bull before he knew what he was about, and before he got warmed up for a long run. My faithful old horse dashed off like the wind, and as he tore along through that soft snow and stiff sage-brush I thanked my lucky stars that I was on my strongest and swiftest horse.

This is Jim's description of the chase, as I afterward overheard him relate it to the boys at camp:

"Great Lord'lmighty, fellers, but ye just ought to 'ave seen the way old Brownie flew onto them buffalo! He jest *flew* up that hill and over it, with the snowballs aflying from his feet in every direction. The air wus *plumb full* o' flyin' snowballs, and when I come along they just rained down onto me and my pony. W'y, dang me, if it didn't seem to me like I never saw a horse run so fast before. He *jist flew!* I come on as fast as I could, but Lord! my old pony was nowhere. Well, sir, that horse run right up onto them buffalo before they knew what they was about. The old gentleman (*'old gentleman,'* indeed! Humph!) rode *right up even* with the old bull, and when he saw he was caught he just stopped, and

whirled around to fight. But they sheered off around him, and then the boss let him have it right behind the right fore leg. I never saw a buffalo so surprised in all my life. When I got to the top of the hill, there was the boss and old Brownie a-sashaying around that old bull, and him standing there with his head down, ready to fight."

We overhauled the old fellow about two hundred yards from the top of the hill. As we got alongside, I fired for his lungs, but the motion of my horse utterly destroyed my aim, and the bullet ranged below them, as I found later on. An instant later I found myself on his left side, and gave him a shot fair in the shoulder. Down went the great beast, head foremost, and without waiting to take even a second look I turned my attention to the young cow, which was then three hundred yards away, headed downhill and running like the very mischief. Seconds were precious then, and I could not wait to see the bull die. By sheer force of habit I gave brief chase after the flying cow, but she got away from me.

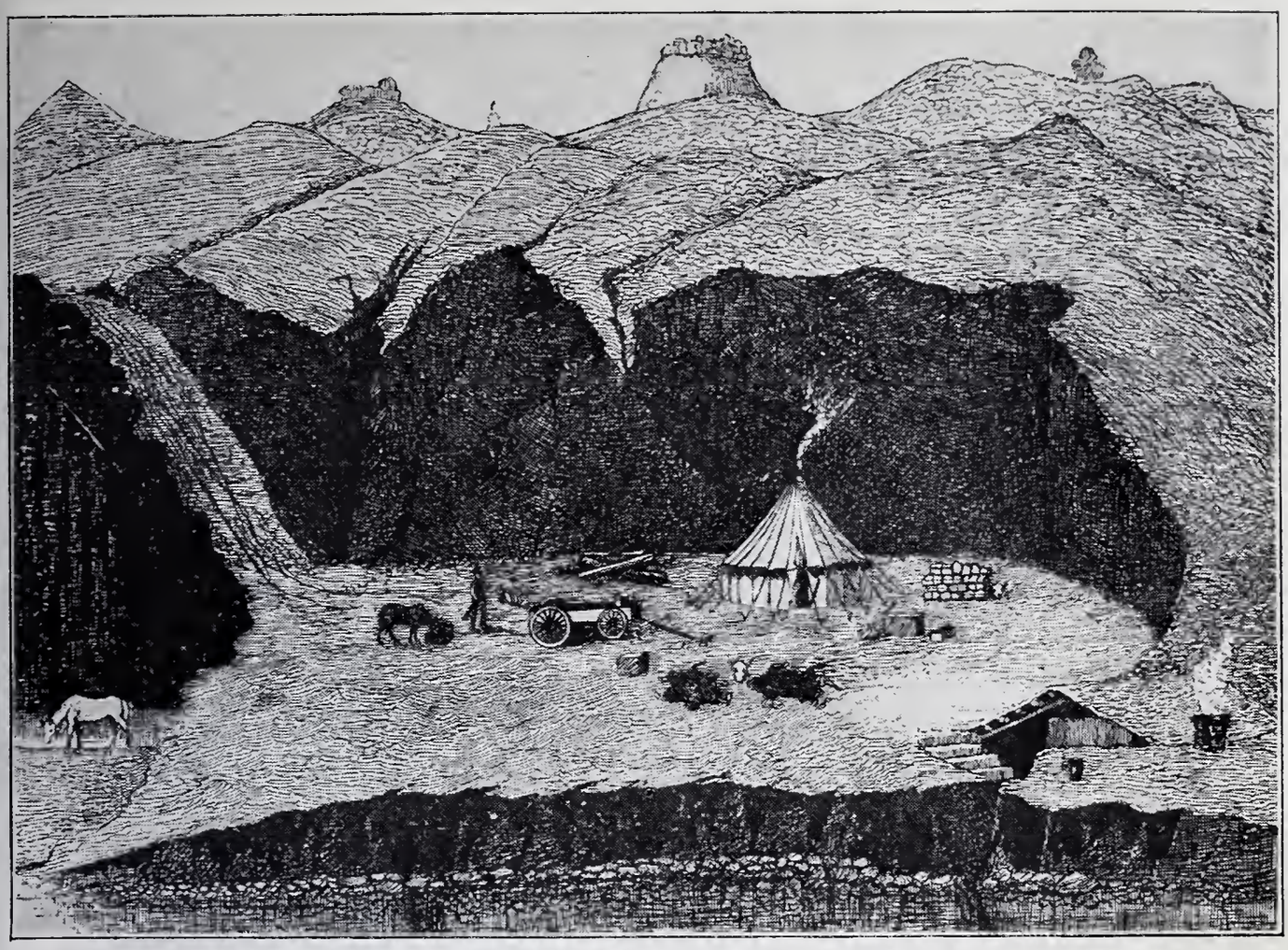
When I again came in sight of the old bull he was still alive, lying just where he fell, but with his back and head well up. Even lying down on that treeless prairie, he looked as big as a country schoolhouse. Jim was nowhere in sight and—could I believe my eyes?—*neither was the cow he had killed!*

As the bull saw us coming he staggered to his feet, in spite of his broken leg, and galloped off over the hill. But the moment he started, my brown horse—who had more sense than some men I have seen—immediately gave chase. After a short run we again overhauled our prize, on the side of a hill, near the crest of which he once more halted and stood at bay. Thirty yards away from him I

pulled up, and gazed upon him with genuine astonishment. Not until that moment had I realized what a grand prize had fallen to me. He was a perfect monster in size, and just as superbly handsome as he was big. In his majestic presence the finest of all our other buffalo bulls were quite forgotten, and I thought to myself:

"Until this moment I have never had an adequate conception of the great American bison."

He seemed to me then, ay, and he did later on, the grandest quadruped I ever beheld, lions, tigers, and elephants not excepted. His huge bulk loomed up like a colossus, and the height of his great shaggy hump, and the steepness of its slope down to his loins, seemed positively incredible. Like Bartholdi's statue of liberty, he was built on a grand scale. His massive head was crowned by a thick mass of blackish-brown hair lying in a tumble of great curly tufts, *sixteen inches* long, piled up on each other, crowding back upon his horns, almost hiding them, and quite onto his shoulders. Back of that, his hump and shoulders were covered with a luxuriant growth of coarse, straw-colored hair that stood out in tufts six inches long, and opened in great dark furrows up and down whenever the bull moved his head from me. The upper half of each fore leg was lost in a huge bunch of long, coarse black hair, in which scores of cockleburs had caught and hopelessly tangled. The body itself and the loin quarters were covered with a surprisingly thick coat of long, fine, mouse-colored hair, without the slightest flaw or blemish. From head to heel the animal seemed to possess everything the finest buffalo in the world should have, and although by that time no stranger to his kind, I sat gazing upon him so completely absorbed by wonder and admiration that had



The Camp on the Big Porcupine (1886).

The Group That Opened the Road. American Bison in the United States National Museum.

Collected and mounted, under the direction of Doctor G. Brown Goode, by William T. Hornaday.

Federal Protection of the American Bison.

A small portion of the great herd in the Wichita National Bison Range, Oklahoma.

he made a sudden charge he might easily have bowled me over.

It was an opportunity of a lifetime, such as falls to the lot of few men whose business it is to reproduce animal forms. I studied his lines with absorbing interest, and took one mental photograph of him after another as he stood there with lowered head and angry eyes, watching me intently. Several times his head sank very low, and he viciously pawed the wet snow with his wounded fore leg. But these intervals of anger would pass away, his eyes would lose some of their fire, and he would content himself with simply regarding me.

With the greatest reluctance I ever felt about taking the life of an animal, I shot the great beast through the lungs, and he fell down and died.

He was five feet eight inches in vertical height at the shoulder, full two inches taller than the largest of our other bulls, and the length of his head and body, in a straight line from the end of the nose to the rear of the thigh, was nine feet two inches. His girth was eight feet four inches, and his weight was about sixteen hundred pounds. Like all the other buffaloes we secured, he was muscular from excessive running, but not at all fat. There was not a pound of fat on him, but he carried four old bullets that had been fired into him without effect. He was what old buffalo-hunters call a "stub-horn," and by the nine rings on each horn we know that he was either eleven or twelve years old.*

* This animal is the principal figure in the bison group of the United States National Museum, and it served the artists of the Treasury Department as the model for the bison on a ten-dollar bill still in circulation. During its 38 years of exhibition the once-rich coat of this animal has lost some of its rich color.

Perhaps by this time I have drawn so heavily upon my reader's stock of patience that he will feel inclined to take this buffalo *cum grano salis.* Let me assure you, I have not exaggerated his size one bit. He is admitted to be "one of five thousand," and he who doubts it is respectfully referred to the old bull himself, as he now stands, mounted according to an elaborate series of measurements, in the National Museum.

Jim failed to put in an appearance, so after taking a series of sketches and measurements I threw off my coat, fell to work, and skinned my prize all alone, save for the help I had from my horse. He turned the huge carcass over for me, with his picket-rope attached to the pommel of my saddle, else I would have had a hard time of it. I measured the great beast, skinned him completely excepting the head, spread out the hide, cut off the fore and hind quarters, and cut out the hump meat, all in an hour and three-quarters by the watch.

I was within three miles of the Buffalo Buttes, with the Digger in tow, when Jim joined me. He was mad and tired. The shot which knocked down his cow struck the base of her horn, and while Jim was watching me "a-sashaying around that old bull," the cow came to her senses, got up, and started for Alaska. When Jim saw her she was a long mile away, and he had a chase of seven or eight longer miles before he got ahead of her, and brought her down to stay.

"Didn't you think toward the last you weren't going to get her?" I asked, as a feeler.

"Git her!" said Jim wrathfully. "Blank her soul, I'd a-got her if I'd a-had to run her plumb to the Missouri River!"

And I honestly believed him.

On the 13th of December the wagon train arrived, and without losing an hour we left the Porcupine, and got safely across the Yellowstone, into Miles City, just before the running ice became so dangerous that crossing would have been impossible for I know not how many days. Our entire catch of buffalo amounted to twenty-five head, and the trip yielded, all told, twenty-four fresh skins, sixteen skeletons, and fifty-one skulls, besides the various other animal skins and skeletons we collected. Thus ended our last experience with buffalo in their native wilds. It was an experience that I know will never be forgotten by any of those who participated in it, and I shall never cease to feel grateful to the jolly good fellows—cowboys, "tenderfeet," and soldiers—whose energy and good-will made it a success.

III

THE BAD-LANDS OF HELL CREEK

(1908)

It is an interesting but unaccountable fact that comparatively few American sportsmen ever have carried their rifles into really fine bad-lands. The particularly wild and picturesque bad-lands of Montana and Wyoming have for me the same fascination that arctic ice has for a pole-hunter. When fully under the spell of their grim and uncanny grandeur, one seems to live in a Dantean world, wherein everything is strange and unreal. If you go about with open eyes, you will see that even such savage-looking wastes of land carvings as those of Hell Creek and Snow Creek are stocked with interesting animal life, queer vegetation, and physical wonders. If you are a paleontologist—ah! then your finds are likely to surpass all others—as we shall see.

Unfortunately for the sightseer, the bad-lands along our transcontinental railways are rather tame. The wild tracts do not generate much freight, nor many passengers. To see and feel the real thing, and have it dominate your senses with hypnotic power, go when nerve-weary to a place where you will find a Grand Canyon in miniature, and panoramas of wild nature that you can dream over all the rest of your life. For the time therefor, choose either October or November of The Present year.

I think the finest bad-lands in all Montana are those on Snow Creek and Hell Creek, reaching southward from the Missouri River for a width of twelve miles. The trail

trip northwestward, 120 miles from Miles City, is a good curtain-raiser for the real experience. The modest little buttes and *coulées* along Sunday Creek are just wild enough to convince the explorer that civilization has been left behind, and that the wrestle with Nature is really on. Six hours from the trail's beginning, "the next water," "firewood," and "grass" are topics for serious thought, especially between the hours of four and five in the afternoon.

At the head of Sunday Creek, the plain and simple bad-lands of that stream fade out, and you emerge upon a vast stretch of rolling prairie uplands, absolutely treeless, and drained by numerous small creeks. In days gone by that was one of the finest buffalo-ranges in all the West. After the buffalo days, this side of 1884, it was a fine cattle-range; but the awful sheep-herds have gone over it, like swarms of hungry locusts, and now the earth looks scalped and bald, and lifeless. To-day it is almost as barren of cattle as of buffaloes, and it will be years in recovering from the fatal passage of the sheep. That once-popular buffalo-range extends northward over divide and valley, across the Little Dry, Sand Creek, and Big Dry, ninety miles at least, where it breaks into the awful bad-lands that scarify the country along the southern side of the muddy Missouri.

There were only four of us; and we left Jim's ferry on the Yellowstone on October 2. Jim McNaney was with me on the historic Smithsonian buffalo hunt of 1886, even unto the day when we found and killed the big bull whose lordly portrait now adorns and illumines the face of our new ten-dollar bill.

Our souls had yearned so strongly for another look at

our old haunts up Sunday Creek and beyond the LU-bar ranch that when he proposed a hunting trip to "the worst bad-lands in Montana," I came all the way from the East to respond.

By good luck, our old friend L. A. Huffman, expert photographer, sportsman, and all-around good fellow, had been persuaded to join us; and to the fighting strength of the outfit he had contributed his historic white horse, Jady, and a buggy to carry cameras and plates. The fourth member was Bert Smith, cook and wagon-driver. The other equine members of the party were Bull Pup, Sunfish, Easter Lily, Yellow Belly, and Louey.

Joyously we pulled up to the Little Dry, seventy miles from Miles, and made Camp No. 3. For supper the cook fried—most becomingly—the four sage-grouse that Jim shot in the shadow of the LU-bar Buttes. The pungent and spicy odor of the sage-brush—sweet incense to the nostrils of the Eastern sportsman—the swishing flame of the camp-fire, the snort of the tired horses thankfully feeding at ease, and the white oilcloth spread on the clean buffalo-grass all gratefully combined to soothe the senses like an opiate. *Montana, again!* This is Life! In that glorious weather, we scorned the Sibley tent and slept in the open, triumphantly, as do men who for ten years and more have longed for the trail and camp-fire in buffalo-land. It was Layton Huffman's "first real big-game hunting trip since Ruth was a baby."

For seventy miles our spirits had mounted higher and higher every hour. The joy of it seemed too bright to last —and, sure enough, it was. It was at our camp on the Little Dry that Calamity overtook us, sweating and weary from our all-night ride.

In the early morning, while we were hitching up for a fine start, Calico Charley slowly galloped into view from the south, rode up to our camp-fire and with a brief "Hello, fellers!" stiffly dismounted. A blind man could have seen that he had ridden hard and long.

Jim McNaney, Huffman, and I were each of us married men and each had given double hostages to Fortune. During a long half-minute of painful silence, we looked at Calico Charley, and at each other, without the courage to ask the fatal question. At last Jim managed to say, in a very low voice:

"Well, *which one of us is it,* Charley?"

"It's you, Jim," said Charley, very gently. "Maggie's been took *awful* bad. The doctors say there's got to be an operation—right away. . . . It's to be at four o'clock this afternoon."

Maggie was Jim's wife, and the mother of little Jack. "Sorry" was no name for what we all felt at that moment.

"Well, boys," said Jim quietly, "I'm awfully sorry to miss the hunt with you; but I must hit the trail back. Bull Pup will get me there by four o'clock, all right. . . . Now, the rest of you must go on, and have the hunt; and if Maggie gets well enough that I can leave her, I'll try to join you on Hell Creek, for a few days with you at the finish."

And so, taking a handful of cigars and a box of matches, he flung himself into his saddle, touched Bull Pup with a spur, and in an instant was galloping away on the seventy-mile run.

Three weeks later when he met us returning, again at the LU-bar Buttes, he told us briefly of the ride.

"Well, sir, that plucky little beggar of a Bull Pup took

me to Miles by half past three—and he *never turned a hair!* Blamed if I don't believe he could have brought me back again to the Little Dry by midnight! He's the best little cayuse I ever owned. . . . Yes, you bet, Maggie was glad to see me. . . . Oh, yes; the operation was fine, and she's getting on all right!"

When Jim galloped away from us, Layton Huffman and I conferred briefly, and took an inventory of our resources. Calico Charley could not go on with us. It remained for Layton and me to find the hunting-grounds, somehow, kill our game, take our pictures, and get safely back again, on time. Jim told us that at Jerdon's, on the Big Dry, we could inquire the way to Egan's ranch; and once there, the ranch people would put us wise as to the hunting-grounds, and "locate" us.

Before we moved out, Layton elected me foreman of the outfit. In that position, I did not have to work very hard, but as horse-wrangler-in-chief, I think I earned my keep.

Without the loss of a moment, we pulled on north, and on a level flat a mile above the ruined LU-bar ranch-house we saw the spectacle of the sage-grouse. It was a sight that neither sportsman nor naturalist could easily forget.

The flat was as level as a floor, and the closely cropped buffalo-grass upon it was as smooth as a tennis-court. The ground looked like buff-colored manila paper. The plain was very thinly dotted with tiny clumps of young sage-brush, no larger than spring geraniums, and over numerous spaces even those were absent. As I rode in advance of the wagon, there arose a short distance ahead, but quite near the trail, certain sage-grouse sentinels, which

betokened the presence of a flock. As I slowly rode forward, the birds all stood at attention, and looked at me. Presently they began to stalk very slowly and majestically athwart the trail. Momentarily expecting them to take wing, I rode forward, *pianissimo,* in order to see how near I could approach the flock before it would explode into the air, and wing away.

Montana is a land of many surprises. In very open order, spread out over a quarter of an acre of ground, with heads held high and striding with regal dignity and deliberation, those twenty-four sage-grouse stalked up to the trail, and across it. At a nearness of thirty paces to the skirmishers of the flock, I drew rein to gaze; and presently our whole outfit halted close behind me, to look and wonder.

Each of those birds strutted as if he alone owned the whole of Montana. They gave us stare for stare, preserved their formation, and sauntered on across the trail as if there were not a loaded shot-gun within a hundred miles. It was the most magnificent series of grouse poses that any of us ever beheld, and we regretted that the exigencies of the trail compelled us to move on. The lofty heads, the big, plump bodies, and the long, marline-spike tails slowly and majestically stalked away into the easterly sage-brush, and never a feather stirred in flight. Even to this day, I wonder how those birds *knew* that we would not "shoot them up"!

The trail was good, and our load was light; Jim's team was in fine shape, and we went forward at a rattling pace. By the time you have ridden from the Yellowstone through twenty miles of bad-lands, and across sixty miles of billowy divides, you stand on the hurricane-deck of the lofty

watershed that separates Little Dry Creek from the Big Dry. Incidentally, you also see your first solitary and scared prong-horned antelope, and it looks unspeakably lonesome. As you draw rein, and gaze in spellbound silence toward all points of the butte-filled compass, you think: "How *big* Montana is! This is indeed the top of the continent!"

Your vision takes in with one cycloramic sweep at least one thousand square miles of butte-studded country, and the mental and moral uplift of it all is worth the cost of the trip. Then, and not until then, is your mind in a proper frame to approach the weird wonderland that lies to the north, beyond old Smoky Butte, that looms up in the northwest, a grim and majestic sentinel.

We camped on Sand Creek, and in the gray dawn Layton kindly shot two blue-winged teal for breakfast. Immediately thereafter, by a very close shave we succeeded in heading back our horses after the whole bunch had decided to take advantage of their right to the initiative and referendum, and hit the trail back to the Yellowstone. Had they succeeded in giving us the slip we might have spent half a week in chasing them on foot.

We pulled on north to Jerdon's store and post-office on the Big Dry, forded a river of real water, and obtained careful directions for reaching Egan's ranch without a guide. The specifications were all right, but, as often happens after a contract has been let, the ground-plan of the country didn't seem to fit them.

Beyond Jerdon's the trail was dim, and as it lengthened, its dimness increased. We failed to find the turn-off for Egan's, and went straight on. When sixteen miles had been reeled off, we reached the crest of a lofty divide,

crossed a high and level mesa, and from the western edge of it looked down upon a sea of rolling prairie, richly set in grass. We said: "The ranch may be on the creek that we see, away down yonder. Let us get there, even though we do go west."

We started on the down grade, and very soon the country on our right hand (north) went all to pieces into rugged ravines. We drove and rode, wound in and wound out, and just about sunset reached the bottom, and the creek. There was a sinuous chain of golden-yellow cottonwood-trees, firewood to burn, and water in the hole—but not the faintest trace of a ranch, past, present, or to come.

Then and there we were unquestionably and shamefully lost; and since there did not appear to be any other human beings north of the Big Dry, nor any clew to our position, we went into camp, fed sumptuously, and bade Dull Care begone. That night the coyotes serenaded us in old-time style, and we dreamed that we had come into our own wild domain, wherein no man might molest us, nor make us afraid.

The next morning, at peep of day, I saddled Easter Lily—Jim's favorite mare, and my special mount—and galloped northward to look for hunting-grounds. Three miles along, I caught a glimpse of land ahead that quickly led me to halt and climb to the masthead of a tall butte that rose conveniently near.

Glorious! Two miles beyond that point the grassy plain broke up into a wild revel of bad-lands, such as delights the heart of a mule-deer, and a deer-hunter. The whole landscape was hacked, and gouged, and cut down into a bewildering maze of deep canyons and saw-tooth ridges, all thinly sprinkled over with stunted pines, and

junipers and cedars. As far as I could see, to right, to left, and straight away, the wild and eerie bad-lands bespoke mule-deer, and beckoned us to come on.

I hurried back to the outfit and reported.

"There are grand bad-lands ahead of us, and quite near at hand; and there must be deer in them. There surely is water in them, somewhere, and all we need to do is to work down to a good camping-place, and make ourselves at home. There is no sign of a ranch, and we don't need any."

Layton gave a defiant gesture with his free hand, and recklessly consigned Egan's ranch and Hell Creek to the Bad Place.

We hit a dim old wagon-trail, and when Huffman saw the promised land, from Pisgah Butte, he smiled with satisfaction, and said that it was good.

"But where on earth does this wagon-track lead to, anyhow? Let's follow it up, and see if it don't lead down to good wood and water."

We spurred ahead of the team for about two miles, and presently completed the ox-bow course we had been describing with the previous ten miles. Going due east at last, almost bursting with superheated curiosity, we reached once more the bank of our creek of the previous night—and suddenly came up against the prettiest little log cabin in all Montana! It had the lines of a Swiss châlet. There was a dug-out storehouse, a pile of buffalo-horns, a stable, corrals, and a fine but lonesome shepherd dog chained beside a nice, clean dug-out kennel.

There was no one at home but Shep; but he said he was mighty glad to see us; and wouldn't we 'light and stay awhile? We would. Huffman put up his hands, and peeked in at the window.

"Bachelor quarters; and everything as clean and neat as new pins!"

We eye-searched the country round, but saw no sign of the bachelor. At last we were mounting to ride away, when "spang!" came the call of a six-shooter from the throat of the bad-lands, northerly.

"There he is," said Layton. "He wants us to wait."

Ten minutes later, up came the habitant, breathing heavily, red of face, and looking none too pleasant. He was short of stature, sandy of beard, clad *in neat buckskins* and armed with both Winchester and Colt. He was Max Sieber, ex-buffalo-hunter and Texas cowboy, at present engaged in hunting wolves for the bounty on their scalps, and holding down a valuable water-hole for an increment. Huffman immediately voiced our curiosity.

"Well, now, will you tell us—*where* is Hell Creek?"

"*This* is Hell Creek," said Sieber, very emphatically. "And what are you going to do about it?"

"Well! Of all the luck!"

By guiding ourselves, and opportunely missing the Egan ranch—which was well out of the game country, eastward—our hunter's luck had led us to an ideal camping-place at the very focus of the bad-lands we were seeking.

Behind us was the high and billowy "mesa" covered with unchewn grass a foot high, a domain that was worth thousands of dollars to any stockman. I never saw such grass elsewhere in the West. Sieber was mowing and stacking it, for his pair of monstrous horses, and their sides were ready to crack open with Prosperity. Eastward lay a strange region of high-level bad-lands; and northward, the labyrinth of canyons, and peaks, and ridges was fairly indescribable.

At first the grizzly old wolf-hunter was offish and suspicious; but Layton instantly divined the trouble, and took the situation in hand.

"Now, let me tell you, Sieber. My name's Huffman. I live in Miles, and I'm a photographer. This man is from the East, and he has come out here to kill one or two blacktail, and see how they live when they're at home. I'm going to take pictures of the bad-lands. We don't own a hoof of range stock, and don't want to; and we're not looking for a range, or a ranch site, for anybody. This is a pleasure trip, old man, and nothing else—honor bright."

That was ample. Sieber's clouds rolled away in a burst of sunshine, and the whole country became ours. Being of a sociable disposition, and also downright lonesome, Max was as heartily glad to see us as we were to meet him. He cordially invited us to camp near him, which we did; and from that moment until we parted from him, two weeks later, eight miles along the home trail, we were much together. To find so fine a "character," and precisely where a picturesque old-timer so perfectly fitted in, was great luck.

I wish I could set before the reader an adequate impression of the fourteen halcyon days we spent in that wonderland; but it is impossible. The best that I can do in a few pages will give but a pale glimpse of the whole.

An early discovery, and one which gave us keen pleasure, was the fact that Sieber is an ardent game-protectionist, and a consistent hater of game-butchers. His indignant recital of how certain ranchmen of the North Side had slaughtered great numbers of antelope and deer to feed their dogs, revealed the real lover of wild animals.

We joined him in anathematizing all men who kill female deer and fawns, and we pledged each other that, come what might, *we* never would do either of those disreputable things.

Just below Wolfer's Roost—I mean Sieber's cabin—Hell Creek makes a picturesque bend, and in its encircling arm there is an ideal camp-ground. The cut-bank furnishes shelter; likewise horned owls and swallows. The plaza is covered with good grass, and there is much good firewood in the thin grove of cottonwoods two hundred yards above. We brought down our outfit, pitched our Sibley tent, and settled down to have the Time of our lives.

Max kindly offered to go out with us for the afternoon, and we blithely accepted his company. Whenever he could go with us, he was *persona grata,* to the utmost.

We set out on foot over the plateau to seek the panorama of the bad-lands, with an edge on our expectations like that of country boys going to a circus. We footed it briskly westward along the edge of the high plateau, and after the shaven prairies of the sheep-ranges farther south that wild-west grass was really inspiring. It was knee-high, and rich as cream—mingled buffalo-grass, grama-grass, and spear-grass. Only its long distance from the nearest railway had preserved it immaculate. I mention it thus particularly because at that late day the existence of such a tract of virgin grass-land on the northern buffalo-range was decidedly noteworthy.

There are several kinds of bad-lands. Those most commonly seen are usually tracts of dry and half-sterile country, with low buttes scattered over them, always somewhat picturesque, but seldom grand. Usually, such tracts are of considerable extent, and you enter them by such

slow degrees that your impressions of them arrive rather tardily.

But the Snow Creek bad-lands are very different. You could erect a hand-rail on the line where the rolling, grass-covered buffalo-range breaks off into a wild chaos of rugged depths. In a series of jumps, both quick and long, the grassy *coulées* drop into ravines, the ravines into gulches, and the gulches into deep and gloomy canyons. Fertility ends as abruptly as sterility begins. Often at the spot where a grassy ravine drops sixty feet sheer into the head of a barren gulch, a lone pitch-pine tree takes root and grows up in the angle, as if trying to reach up and get a peep at the upper level.

Near the upper edge of sterility, dark-green masses of trailing juniper cling to the steep sides of the high ridges, as if to hold their barren soil from being further scored and washed down into the Missouri. In the blasted heads of the ravines and arroyos, usually where the ground all about is as bare as a brick-yard, we often found growing rank clumps of the narrow-leaved mugwort (*Artemesia tomentosa*), twin brother of the common sage-brush, and well beloved of the mule-deer.

When we reached a view-point which opened up a particularly fine prospect, we indulged in a few exclamations of surprise and pleasure.

"And are ye really fond of scenery?" said Sieber, beaming with pleasure. "Then come with me, and I'll show you one of the finest sights you ever saw in your whole lives!"

We dared him to go on, and make good.

Turning abruptly northward, Sieber led us only half a mile along the level top of a lofty wedge of the table-

land, which maintained its elevation out to a sharp point that terminated in mid-air. Afterward, for our own convenience, we named it Panorama Point.

It seems to me that no human being can stand on that spot and view that marvellous labyrinth of wild Nature without being thrilled by it. Instantly your thoughts fly to the Grand Canyon of the Colorado, as seen from Point Sublime, only this is in miniature. The fact that you stand on a sharp point, from which the world drops steeply away on three sides, is not the thing that is so profoundly impressive. It is the depth, the breadth, and the awful wildness of the maze of bad-lands into which you look. Before you, and on either hand, there stretch miles upon miles of ragged chasms, divided and walled in by a thousand fantastic cliffs, and buttresses, and domes of naked hard-pan that stubbornly defy the forces of erosion, and refuse to crumble down. In several places there are masses of earth architecture that remind one of the ruined castles on the Rhine. These bare walls are mostly of gray earth, not rock, and the carving of them has been most strangely done. It is only when you climb amongst them, and touch them, that the wonders of erosion are fully revealed.

The hard, dry earth has most stubbornly resisted the disintegrating action of water, wind, heat, and cold, and there are hundreds of earth cliffs nearly as smooth and as perpendicular as the brick walls of Harlem.

I dislike to estimate the total drop of these bad-lands from the plateau to the waters of Snow Creek, but I *think* it is about eight hundred feet.

After the first moments of spellbound wonder and amaze, you begin to pick out the geography of what lies before you. You see that the axis of all this wild waste of

carved and furrowed earth is the level and very narrow valley of Snow Creek, which comes down from the west. You can easily trace its course eastward to the point where it bends abruptly northward and runs into the Missouri, parallel with the last eight miles of Hell Creek. In the creek bottom there is a sinuous string of cottonwood-trees, aspens, and willow brush.

The uttermost boundary of this sublime prospect was formed by "the breaks of the Missouri," on the northern side of that stream, and about twenty-five miles away. With a glass, the valley of the "Big Muddy" was plainly defined, and so were the "breaks," but no camera is able to seize and record those far-distant details. We absorbed them into our systems, but on the dry plates they do not appear. Every camera has its limitations.

All this while, I have been wildly impatient to record the occurrence of the first three minutes of that first view from Panorama Point.

When the Wolfer led us to the Point, Layton and I seated ourselves on the outermost edge of the jumping-off place, and rested our feet on a little ledge that is conveniently placed below. Sieber seated himself directly behind me, on the left. We had taken only one good look at the panorama before us, and the choice adjectives were but beginning to loosen up, when Sieber excitedly exclaimed:

"Look there! Look! *There goes a dee-er, now!* Shoot, quick! Shoot!" (He always said *"dee-er"* for deer.)

A hundred and twenty yards below us, and to the left, on the steep side of our flat-iron, stood a really fine adult mule-deer buck, gazing up at us in mingled astonishment

and curiosity. While Huffman scrambled to his knees behind me, I turned on my rocky perch, and actually *waited for him to get ready!* Having given him what I regarded as time enough, our two rifles cracked together, so exactly in unison that a moment later, when I threw out my empty shell, Layton innocently exclaimed:

"Why—did *you* shoot, too?"

The buck kicked back with both hind feet, then turned and went bounding down to the bottom of the gulch. We saw on his side a fatal red blotch—which Huffman had made, not I.

"He's hit! He's hit!" cried Sieber.

The buck leaped across the dry bed of the ravine and started up the opposite ridge, intending to climb high over it and away; but half-way up he fell, and quickly expired.

When we laid hands upon Huffman's prize and examined it, a strange and interesting story of wild-animal life was revealed. About three months previously, that is to say about August 1, that deer had been leaped upon, from above, by a mountain lion. Its right ear was fearfully torn, and there was a big wound on the top of the neck where the skin and flesh had been torn open. The main beam of the right antler had been broken off half-way up, while the antlers were still in the velvet. The end of the broken antler had healed over in a way that enabled us to fix the date of the encounter with a fair degree of accuracy. Both the hind legs had been either clawed or bitten, but we could not surely determine which.

It is our opinion that when the mountain lion leaped and fastened upon the neck of his intended prey, the struggling buck either leaped or fell over a cut-bank and landed upon his back, with the puma undermost. Although he

broke off the executive branch of his antler, he so seriously injured his assailant that the mountain lion was glad to escape without doing further damage. Some of the casualties to the deer are plainly visible in Mr. Huffman's photographs of the dead game.

A few days later we found, about two miles above our camp, close beside the dry bed of Hell Creek, the story of another wild-animal tragedy. On a tiny bit of level bottom-land, which was well planted with thick clumps of tall sage-brush, there lay the well-gnawed remains of a mule-deer. Close beside the skeleton there was a round hole in the earth, like a post-hole, made by the waters of the creek, about two feet in diameter and five feet deep. This hole contained about two-thirds of the hair that once had covered the deer. As sure as fate, that yawning hole, which lay like a hidden trap under the long grass and the drooping branches of the sage-brush, had been the undoing of the luckless deer. It seemed to us that while being chased by wolves, the deer had landed heavily on that spot, with *both its fore legs in the hole,* and before it could scramble out, a wolf, or several wolves, had pounced upon it, cut its throat in quick time, and afterward devoured the animal as it lay across the opening. In no other way could we account for all that hair on the sides and bottom of the hole.

In the hope that the wolves would return to those remains for a final gloat over them, Max Sieber generously provided three wolf-traps to welcome the expected guests; but during our stay none were caught.

The weather during that golden October was supremely fine. When you have only two weeks to spend in your hunting-grounds, it is good that none of the time should be stolen from you by anything so cheap and commonplace

as rain. It was a grand time for the cameras, and we revelled in the opportunity. Huffman's pictures were fine, but my seventy-odd kodaks did not develop as well as they should have done.

We hunted deer, also; but in reality our desire to shed blood was not very strong, and our rifles were useful chiefly as an excuse for ranging far and wide. One of our finest days was when Layton and I rode off alone, and took a wide circuit through the western bad-lands, worked down to Snow Creek, and climbed back by a new route. We discovered, well away toward the west, a long, round-topped ridge, richly set in grass, rising between two pine-filled canyons, and sprinkled all over its top with scattered pines and cedars. It was like a lovely dream park, and just when its serene beauty had filled our souls to the chin, we found the nymphs. Five fat and sleek mule-deer does suddenly appeared amongst the cedars just beyond our horses' noses, stood still, and gazed at us for the fleeting moment which is so fatal to that species. Even before they wheeled away, Huffman had mentally christened that ridge "The Doe's Pasture"—a very fit name, indeed. Then the does wheeled and calmly trotted away toward Snow Creek, leaving us wondering *how* they had so quickly learned of our solemn vow not to shoot female deer! That they *had* found it out (by telepathy?) I am sure I can prove, by Huffman.

We struck an old buffalo-trail, and followed all its devious windings down the steep sides of a canyon, in and out, twisting and turning, until at last it landed us on the level floor of the valley of Snow Creek. It is a long, hard job to lead a horse either up or down between mesa and creek-bottom.

We forded the little stream and found a cosey shelter in the sun close beside the combination so dear to the frontiersman—woods, water, and grass. There we offsaddled, let our horses graze, built a friendship fire, ate our frugal luncheon, and basked in the romantic wildness of our surroundings.

We found no bucks that day, and cared naught. Late in the afternoon, when we finally climbed out of the badlands, leading our horses, and following another old buffalo-trail up to the grass-lands, we discovered in the head of a long valley a goodish bit of heavy pine timber. Just within the edge of that, and within pistol-shot of the rich grass-lands where the buffalo millions fed fat as late as the early eighties, we found the half-ruined remains of a buffalo-hunter's cabin. No lazy man was he who built it, for it was well done, and had been a comfortable home. The roof had partially fallen in, but the walls were quite intact, and as Huffman and I poked about the place, we saw visions of long-vanished herds of shaggy black heads and high humps, hides drying on the snow, millions of pounds of fine buffalo beef going to waste, and the constant dread of "hostile Sioux" over all.

Along the edge of the buffalo-range we found in many a grassy hollow and sheltered *coulée* the bleaching remains of buffaloes, now reduced to scattered bones, very white and clean. In 1886, we found between the Little Dry and Sand Creek thousands of decaying carcasses, lying intact just as the buffalo-skinners left them, the hairy heads looming up black and big on the bare sod. But now, all those have so completely disappeared that it would take a long and wearisome search to find enough buffalo-bones to fill a bushel-basket. By diligent watchfulness, however,

Sieber had accumulated nearly a hundred weathered buffalo-horns, and had them piled on the roof of his storehouse, waiting for a chance to dispose of them.

At Sieber's ranch, a dozen old buffalo-trails converged, focusing upon the deep and permanent water-hole which constituted our friend's most valuable asset. So plain are they as they lead down the steep slope from the east that Mr. Huffman made a photograph to show three of them on one plate. What could be finer for wild bison than grazing-grounds such as these, close beside perpetual water, and a labyrinth of ravines in which to shelter from the sweep of the blizzards!

Our camp was exceedingly comfortable, and also interesting. Our tent stood within seventy-five feet of the high cut-bank on the opposite side of the waterless creek, and in a cosey niche in the earthen wall there lived a fine old western horned owl. His sconce was only about twenty feet up the wall, and there he sat, every day, meditating and blinking away the hours. His working hours were from sunset until sunrise. During the daytime he always seemed happy to meet those who called upon him, and occasionally hooted vigorously, *in broad day*—not necessarily for publication, but to guarantee good faith. I can hear even yet the hollow and sepulchral reverberations of his greetings as he called out:

"*Hoo*-hoo-hoo-*hoo*-HOO,—ah!
If you won't shoot *me,*
I won't shoot *you,*—ah!"

We accepted the trust the old fellow reposed in us, and throughout our stay the only service we exacted of

him was looking pleasant while Mr. Huffman planted his largest camera at the shortest possible range, and took his picture. Quite near to him, and stuck against the bare wall of earth, were the mud nests of a colony of cliff-swallows, but at that season the owners were absent for the benefit of their health.

The gathering of our supply of firewood, from the clump of cottonwoods in the bend above our camp, led to an episode with five small animals. Our cook hitched a horse to an ancient and very dry cottonwood log, snaked it down to our tent, and procceded to cut it up. Being cottonwood, and old, it was necessarily hollow. In due time the inexorable axe revealed in the cavity a fine, ample and very proper nest, made chiefly of the feathers of wild birds, and containing five white-footed mice, snugly settled for the winter. Packed close against the side of the nest was about a pint and a half of fine, clean seed, like radish seed, evidently furnished by some weed of the Pulse Family.

While the food-store was being examined and finally deposited in a pile upon the open ground near the tent door, the five mice let us see how they run, and escaped to the sage-brush.

Now, in that rustic scene there was a bit of stage property which no one noticed at the moment, but which any old theatre-goer among those present might have known would be put to use before the play was played out. It was the old-fashioned buggy that belonged to Jady and Mr. Huffman.

At the end of the day, we promptly forgot the white-footed mice; but they made other arrangements. In the morning when Mr. Huffman lifted the cushion of his

buggy, and opened the top of the box underneath, in quest of more dry plates, five cunning little heads bunched close together, five pairs of beady black eyes looked up at him in friendly curiosity, and politely asked him what he wanted. I heard a cry for help.

"Great—day—in—the—morning! Just come out, and look here!"

It was one of the drollest sights I ever saw. The mice were not in the least alarmed, and for some *minutes* they made no attempt to escape. They seemed to be consumed with curiosity, about *us!*

"Get your camera, *quick,* and take them where they are!"

The photographer flew for his machine, and actually brought it to bear upon the group; but its big, glaring black eye, so near and so fearsome, was too much for mice, and before the negative could be exposed they stampeded. They streamed down the wheels and again took refuge in the sage-brush.

On taking an account of stock, we found that those amazing little creatures had gathered up every particle of their nest, and every seed of their winter's store, and *carried all of it up into the seat of that buggy!* The nest had been carefully remade, as good as new, and the seeds placed close by it, as before. Considering the many journeys that were required to carry all those materials over the ground, up the shafts of that buggy and into the seat of it, both the agility and the industry of those tiny little animals were amazing.

By way of experiment, we again removed both nest and seed, and placed them all upon the ground near the tent, as before. During the following night, those indomitable

mice *again* carried nest and seed back into the buggy seat, precisely as before. Then we gathered up the entire colony, nest, seed and all, and finally took the whole collection back to New York, where they might be seen of men.

And yet there are people who doubt whether animals reason!

Directly eastward of our camp there was a stretch of bad-lands quite different in character from the great Panorama of Snow Creek. It was high land, but in places most gruesomely blasted and scarred, as if by raging fires. At intervals there rose isolated buttes, or groups of buttes, like so many volcanic islands in a sea of dead lava. Among those buttes there are patches of grassy grounds, and, what was more to the point, many clumps of narrow-leaved mugwort, white sage and cinnamon sage. Sieber said that in October the solitary mule-deer bucks approve that region, and are occasionally to be found there, at long range. He told me, with deep feeling and the self-abasement that marks the truthful hunter, how he once climbed to the top of a low S-shaped butte, saw a fine buck below him within fair range, fired at him with all possible confidence and a good rifle, but missed him, clean and clear! He would give twenty dollars to know *how* he came to miss "that buck."

On the third morning of our stay, we elected to investigate those bad-lands, and again Max Sieber recklessly volunteered to accompany us,—"hay or no hay." We got an early start, and were in our hunting-ground at daybreak.

I now approach an incident before which the most hardened *raconteur* might well pause, and calculate his

chances of being believed. When written down, it will read so much like a cheap invention that it might be wiser to leave it untold.

Layton, Sieber, and I together hunted through those bad-lands for two hours or more, without results; and then Layton left us to hunt alone through an isolated group of buttes half a mile away. Sieber and I tramped about until we approached a low butte, and then he said:

"Now, here we are! If you will come up to the top of this butte with me, I'll show you right where I missed that fine big buck, last winter."

I thought (very secretly), "Oh, *hang* the big buck you missed last winter! What I want to see is a living buck, not the scene of a dead failure."

But Sieber blithely started up, and solely to humor a kind friend I sacrificed myself and climbed after him, without audible protest.

We reached the top of the queer hog-back, which really was like a capital S, three hundred feet long, and along its crest we walked. At its farther extremity it rose a hundred feet higher, in a bald, round dome of blasted earth. Up that also Sieber and I climbed, side by side, and presently overlooked its highest point.

Raising his right hand, he pointed down the farther slope, toward a ragged notch a hundred and fifty yards away, and said, reminiscently:

"That buck was standing right down in—*why! Look! Look! There's a dee-er there now!*"

Down he crouched,—sensible to the last,—hoarsely muttering, "But it's a doe!"

But I knew better: for I had seen the glint of high light on a fine pair of antlers.

"No! It's a buck! *I see his horns!"*—Bang!

He leaped just twice, then went down to stay; and by the time we reached him he was lifeless. But really, the remarkable coincidence represented in the flesh and blood of that buck seemed almost incredible. It took minutes for us to adjust our minds to it, and make it seem real.

Sieber said to Huffman: "It was as purty a shot as I ever saw made—quick, close behind the shoulder, and a shore bull's-eye."

The death of that fine specimen, in a wild and rugged landscape, and by a single shot, gave me all the blood I cared to shed on that trip, even though it was, as Sieber said, "a mighty long way to come to kill one black-tail buck, saying nothing of the hard work and the expense." But it is not all of hunting to kill game.

That was a fine, large buck, with fairly good antlers, —fully developed and long, but not so massive as we like to have them. He stood 42 inches high at the shoulders. The contents of his stomach was totally different from what I expected. Instead of the grass that we all looked for, it consisted almost wholly of narrow-leaved mugwort (*Artemisia tomentosa*), which had been eaten to the exclusion of practically everything else. There was hardly a trace of grass. Later on, when we tasted the stems of that species of mugwort, and found how pungent and aromatic is the flavor, and how tender to chew, we did not wonder why the deer were partial to it.

Those buttes east of our camp were literally alive with cottontail rabbits. They loved the sunny nooks that were strewn with rocks, and it was a common thing to disturb a meeting, and see five or six rabbits wildly scurrying away in different directions, but all in sight at the same moment.

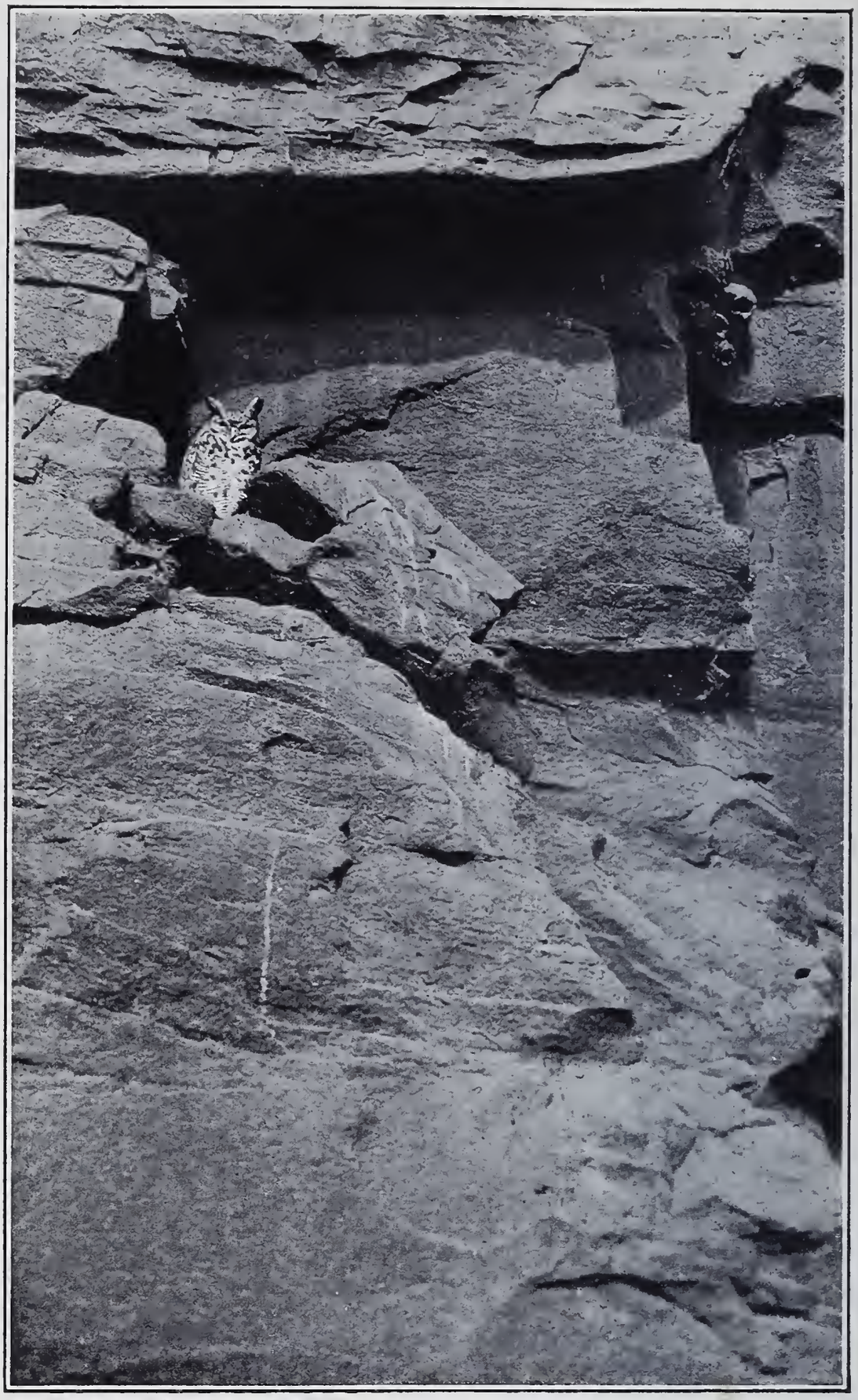
From a photograph by L. A. Huffman.

Old Buffalo-Hunter's Cabin at the Edge of the Grazing Grounds. Bad-Lands of Hell Creek.

From a photograph by L. A. Huffman.

The Author's Coincidence Mule Deer.

High level Bad-Lands. About in the centre of this picture was found the Triceratops horn which led to the discovery of *Tyrranosaurus rex.*



From a photograph by L. A. Huffman.

Details of Cut-Bank, with the Owl and Swallows' Nests

The prairie hare was very scarce; and I saw only three individuals during the entire trip.

Gray wolves, and coyotes also, were rare—thanks to the delicate ministrations of Wolfer Max and others. I saw only four wolves during the month that we were out. One spotted lynx was seen. Mr. Huffman and I came upon it on Hell Creek, finishing a repast of rabbit, and although my companion-in-arms wounded it, it managed to get into a wash-out hole in a cut-bank and escape.

We saw the fresh work of the western yellow-haired porcupine, on Hell Creek above our camp, where several cottonwood saplings had been denuded of their bark and small twigs, *pro bono* porcupine.

Sieber assured us that in the Panorama Bad-Lands there dwelt, even at that time, a band of about half a dozen mountain sheep; but we did not look for them. I did not doubt the report, because I once met the fresh head of a huge old ram who lived in bad-lands down in Wyoming which were by no means so deep or so high as these.

The most exciting feature of our story remains to be told.

Over in the easterly bad-lands, about in the centre of the landscape behind my dead mule-deer, Max found three chunks of fossil bone which when fitted together formed a hornlike mass nearly a foot long. It was the terminal half of the *front horn of a Tri-cer′-a-tops,* a huge three-horned, armored reptile of the Upper Cretaceous, that is as big as a rhinoceros, and looks like one, dead or alive! Then Max Sieber took me to a spot near by where he had found the badly weathered remains of what once had been a fossil skull, as large as the skull of a half-grown elephant. It lay quite free, upon the bare earth, in a place that looked

very much like the crater of a volcano, it was so blasted and lifeless, and cinderlike. The skull was so badly weathered that nothing could be made of it, but near it lay several fragments of ribs in a fair state of preservation.

It was very evident that in the age of reptiles some gigantic species had inhabited that spot. There was no knowing, without a thorough examination by an expert collector of fossils, what that square mile contained; and so, with Professor Henry Fairfield Osborn in my mind I brought away the specimens which seemed likely to afford Science a clue.

On reaching New York, Professor Osborn was keenly interested. The *Triceratops* horn was considered of sufficient importance to justify the American Museum in sending Mr. Barnum Brown to the scene of the find, to make a careful reconnoissance of that locality. Half way up the western face of the butte directly opposite Sieber's cabin, on the east bank of Hell Creek,—the very one which bears the two piles of stones which I erected to form the wild western "water sign,"—Mr. Brown found the remains of a new genus of gigantic reptiles—predatory, and carnivorous to the utmost. A skull, *four feet long,* and set with frightful teeth, was unearthed and sent to New York; and in due time the world was introduced to *Tyrranosaurus rex,* the Tyrant Dynosaur, late of Hell Creek.

IV

GOLDEN DAYS IN THE SHOSHONE MOUNTAINS

(1889)

In an ideal hunting-trip—which must be in grand country, and in quest of grand game,—the death of the coveted prize is only an incident. To a true sportsman, one fine elk, mountain sheep, goat or bear is a sufficient reward for a rough trip into remote wilds, involving many sacrifices, and hundreds of dollars in money.

The ideal hunting-trips are those that are made chiefly for the sake of camping out in a wilderness, with both feet upon virgin soil; for the sake of roaming the untouched forests and the unspoiled pastures of the wild flocks, breathing pure air and looking far; for the sake of tiring the body, resting the mind, and luxuriating in Nature's own domain.

If you put one point of a pair of dividers on the town of Buffalo Bill, Wyoming—called "Cody" on the maps—and with the other draw a circle with a twenty-mile radius, it will contain the finest assortment of wild and weird country that can be found in many a long day's search. It will embrace a genuine desert, a magnificent labyrinth of saw-tooth bad-lands, an isolated mountain of monumental proportions, a grand mountain-range, a beautiful mountain valley, sundry poisonous hot springs, and a roaring river boiling through a gorgeous black canyon which no man ever dared to navigate until the Government built the wonderful Shoshone Dam, at the forks of the river.

All these superb sceneries and stage-settings were un-

rolled and utilized in regular order for the delectation of a hunting-party made up and led out by Lieut. C. S. Robertson during a certain memorable November, not so very long ago. It was a military party, and I was the only civilian among those present. On the receipt of a telegraphic invitation from the leader to go as his guest, I fled from the East on short notice, with only my Maynard rifle for heavy baggage, and caught up with the outfit at the camp of Crow Chief Plenty-Coups, in Pryor's Gap.

It was a great party. Lieutenant Robertson, then of the First U. S. Cavalry and stationed at Fort Custer, was a gallant soldier, a true sportsman, a Virginia gentleman of the first water, and a generous and faithful friend. Few have mourned his untimely death more than have I. His special comrade-in-arms, Lieutenant Barber, was also of the First Cavalry, and because of his many lovable qualities, I, like everyone else, soon became greatly attached to him. "Win" Brisbin, the third habitant of "the officers' tent," was the young-man son of the General in command of Fort Custer, and his boyish delight in every feature of the trip was a constant source of pleasure to the whole party. In these blasé days, the enthusiasm of an unspoiled American boy, with red blood in his veins, is a refreshing thing to see.

In "the men's tent" there was Fleming, the packer, a sergeant, various troopers and teamsters from the First, and a fine cook. We had no guides, but there were two Crow Indian scouts, named Poor-Face and Forked-Gun. They loved a hunt for big game, and had they been "turned loose" would blithely have slaughtered every wild thing in Wyoming.

We had two four-mule wagons, eight saddle-horses, two Sibley tents and a cook's tent. It was the first trip afield that I ever made when I was not Chief Worrier, and responsible for everything, good and bad. What a rest it was! The management of that outfit was absolute perfection, and I love to recall our enjoyment of it all. Incidentally, it was no less a man than General A. L. Mills (then a First Lieutenant in the First Cavalry) who loaned me his camp bed, while Mrs. Mills prepared an ideal basket of luncheon to cheer and sustain Lieutenant Barber and me on our two days' swift chase in an ambulance after the outfit, from Fort Custer to Pryor's Gap.

From Pryor's Gap we gaily trekked southward along Sage Creek No. 13 for a sufficient distance, then turned a right angle and headed southwestwardly across the Forty-Mile Desert, toward the stage station on the Stinking Water River, near Heart Mountain, Wyoming. The trip across the desert was easily accomplished in two days. In a blinding snowstorm we plunged down the steep bluff road to Green's ranch and stage station, which is called Corbett, and camped in the willows of the river bottom just below it. Mrs. Green, the ranchman's wife, told us that she had not seen a white woman in two-and-one-half years. But it is different now. The fine, modern town of Cody is only a few miles above.

It was there that our hunt for big game began. Southeastward of Corbett, but quite near at hand, there stretches away an immense tract of bad-lands. It is more miles in diameter than I could estimate, and while not so deeply cut nor so grand as those of Snow Creek, Montana, they are amazingly intricate. They consist of ten thousand little saw-tooth peaks and cones of bare earth, so closely

set together, so uniform in height and size, and so utterly devoid of landmarks that to get lost in them seems not only easy of accomplishment but certain to befall whoever dares to set foot in them.

The older hands of our party hunted along the edge of this labyrinth, but young Brisbin, who ventured into it, promptly lost himself on the first day, and black darkness caught him there. In response to his signal shots, Poor-Face and Forked-Gun went out into the night; but even when they were so near him that he could give them, *viva voce,* the grand hailing signal of distress, they could not find him. At last Forked-Gun cried out, in desperation,

"You no shoot, me no find you!"

Thus exhorted, the lost one began to expend cartridges, and kept it up until the scouts reached him.

Bright and early on the day after we camped at Corbett, we went out toward the bad-lands in quest of mule-deer. It chanced that Lieutenant Barber and I were drawn as companions, and he made haste to admit that having had practically no opportunities for hunting big game, he knew very little about the troubles it involved.

"But I *do hope,"* he said, anxiously, "that we can find a good buck. The other fellows will be very likely to kill something, and we simply *can't* go in empty-handed. Now, if you see anything worth shooting, *don't wait for me!* Just kill it, quick!"

This was a contingency I had not counted upon; but we solemnly agreed that we would bag a buck, or perish in the attempt. Looking all about from a high point, we selected a particularly bad-looking bunch of buttes on the edge of the bad-lands, and thither went.

We hunted until high noon, but found no other game

than prairie hares. On the top of a rocky ridge we sat down, ate our luncheon, and ardently wished for a deer. No one ever will know how we longed for a buck—a big, wide-horned buck, with a swollen neck and a bad eye, and dangerous to "meet-him-alone-in-the-woods!" Finally, we came down to wishing for even a small buck—a three-pointer better than none.

About three o'clock Lieutenant Barber said, despairingly:

"I declare, we *must* take back *something!* I've a great mind to shoot some of these jack-rabbits. They would be better than no game at all."

"No," I said, "not yet. This surely is mule-deer country, and we must have a deer, or nothing."

At last we neared the end of our hunting-ground, and our hopes fell to a fearfully low point. Barber was inconsolable at the prospect of being beaten in the chase by "those other fellows"; and being the senior wrangler, I felt as if I had stolen a sheep.

As I led the way, slowly and disconsolately, northward along the side of our ridge, but in really good form for spying over the crest into a very likely valley that ran alongside on the west, a gap in the rocks suddenly revealed a full-grown, fully-antlered *mule-deer buck,* briskly and jauntily walking northward along the level floor of the little valley! He was a hundred yards down, and a hundred and fifty yards ahead of our position. At that moment he was to us the finest wild animal in all the world!

Halting just long enough to show the game to Lieutenant Barber, I hopped down below the summit, then rushed forward as fast as I could put feet to the ground. I knew that, in order to get a fair shot, I must overtake

the deer, and I ran as if the whole United States Army had been looking on.

There was no fall, no noise not down on the programme—nothing unlucky. After I had reeled off what I believed to be two hundred yards, good measure, I shut off steam, and quickly sheered up to a bunch of rocks on the summit that gave me a safe view down into the valley.

There was our buck, precisely where I had hoped to see him, still briskly stepping northward! It was the work of but five seconds to stop breathing, aim and fire once,—and the buck was ours.

"Hooray for the First!" cried Lieutenant Barber from far back, joyfully swinging his hat. Like a true sportsman, he had stood fast in order not to double the chances of alarming the game by a premature advance. I never saw a hunter more pleased than he. In the secret solitude of those bad-lands, we gloated many gloats over our good luck, over the fact that it was a full-grown buck, that we could go in heavily loaded with spoil, and further, that "the other fellows" would have to do right well to beat our prize.

After we dressed the carcass, we went to work with all the confidence in the world to load it upon one of our horses. But the animal was big, fat, and very limp; and although we were strong men, we found it utterly impossible to place the entire animal upon a horse! Had it been rigid, it would have been easy; but the awful limpness of it could not be overcome. In a great rage over our failure, we fell to work and cut the animal into sections which were transportable. On reaching camp we found that our rivals had killed three mule-deer (two young bucks and a doe), but our specimen was really the prize of the day.

The next morning a very exciting incident arrived—sandy-haired, square-jawed, armed with Winchester and six-shooter, riding a tough little cow-pony and leading a pack-horse with bed and board. It was J. W. Sharrock, official and effective game warden for the Northern Wyoming Game Protective Association. We had no licenses, and we were caught red-handed, with four deer on us.

Fortunately, our leader had received a hint that the warden was coming; but he came upon us well ahead of schedule time. We all greeted him civilly, and then solemnly filed into "the officers' tent," to sit down and talk it over. Sharrock and Robertson were as cold as ice; and the talk started as slowly as molasses in January. The case was so serious that on our side no one save our leader uttered a word. We knew that under certain conditions trouble might easily be precipitated.

"Now, Mr. Sharrock," said Lieutenant Robertson, as soon as the ice had been cracked a little at the edges, "to people in the army, it's like this: We are out here in a wild, God-forsaken country, with few pleasures in it, and not any too much that's interesting. We're doing time here to keep the Indians from shooting-up the settlers, and to give your people a chance to get the country in shape. We have mighty few diversions, and it seems to us that we ought to have the right to do a little hunting once in a while, when we can get a chance—which is very seldom. So far as I know, in all wild countries, army men are allowed to hunt without the regulation license."

"You see, Lieutenant," said Sharrock, slowly, "things have changed a whole lot in Wyoming during the last few years. The game is agoin', mighty fast. The Indians

have killed an awful lot of it, the market hunters from Montana have killed all they could, and the settlers were just wipin' out the rest of it when the Association got in its work, and had some laws passed, to save *something!* The time was when nobody cared how much game was shot, and everybody shot all he pleased. But that's all changed. Instead of finding four or five good bucks yesterday, you found only one. You can see for yourself that if the officers and soldiers at Fort Custer were allowed to come in here whenever they pleased, and kill all the game they could, the Association might just as well go out of business. *You* know that before now the soldiers used to go out from the army posts in Wyoming and Montana, and kill game by the wagon-load."

"I know," said Robertson. "That was done, up to a few years ago, but it's not done now. The game is too far from the posts. This is the first party that has gone out from Fort Custer in two years, or about that time. We are not wanting to make a big killing. We've got plenty of meat to eat, so far as that is concerned. We're here as four sportsmen, and we had planned to shoot only a very few head of game."

"But ain't your men going to shoot, too?"

"Well, to be perfectly frank, I had expected that they *would* shoot, some; though not much. I don't believe in game slaughter. None of us do. I've already written to Colonel Pickett, your President, told him all about the party, and asked him to square it with your Association."

"Well, that's good. And ye haven't heard from him yet?"

"No; but I'll send a man over to-day if you like, and get his answer."

"Well," said the warden, "I'll tell you how I think we'd better fix this thing. *You* know that as long as I'm a paid game warden I *couldn't* agree to have all the men of this outfit kill all the game they could. But I don't want to spoil your hunt, either. Colonel Pickett will probably tell you that he is willing for you three officers, and this man from the East, to have a hunt, *provided* you won't let your enlisted men and your two Crow scouts shoot up everything they see. Now, if you'll agree to that, I'll not have another word to say."

"Of course I'll agree to it!" said Lieutenant Robertson, heartily. "That's as fair as can be. And I invite you to join us as our guest. Come on up to the Forks with us, and stay to the finish."

"Oh, that ain't at all necessary," said the warden, pleasantly. "Your word is enough for me."

"Well, then, *come on for company,* and help us to have a good time!"

"Well, since you put it that way, I'm tempted to do it. It's none too lively in here,—and it might be that I *can show you where to get one or two good shots!*"

And thus ended an incident that at first was like the loose end of a live wire. Warden Sharrock did go with us, and was *persona grata* throughout. He was a good fellow, as well as a good game warden. When we parted, two weeks later, he gave the four of us a first-rate dinner at the Corbett stage-station, and we parted with mutual admiration and regret. May his cattle cover a thousand hills!

On this trip I wore for the first time, and with outrageous pride, a very good elk-skin hunting-shirt, which was generously bedecked with fringe. Before we left

Corbett, my acquaintance with Forked-Gun had progressed far enough that one morning he flung decorum to the mountain breeze, and took the sleeve of my shirt gently but firmly between his dusky thumb and finger.

"*Heap* good!" he exclaimed: and his eyes beamed it.

"Cheyenne," I answered, affably, as became the proud possessor of a thing desired by some one else.

"Me like 'um, heap!" said Forked-Gun, earnestly. "*Me buy 'um!*"

"You like 'um—have Crow squaw make 'um."

"Huh! *Squaw no good!* You sell 'um, me! How much?"

"Me no sell 'em," said I, "Keep 'em."

"Yes! Me buy 'um—Fort Custer. *You sell 'um—me!* How much?"

For a third time, like Cæsar, I put the offer aside, undecided whether to be annoyed or amused. The idea of a lazy Crow Indian, with a voice like a bull buffalo, wanting to buy a buckskin shirt literally "off of" a white man seemed rather droll. While I puzzled over it, Robertson exclaimed hilariously:

"The old coffee-cooler thinks that a white man will sell even the shirt off his back for money—*and to an Indian!*"

I sat down on a bed-roll, to turn it over in my mind, and presently discovered that I had been insulted; but by the time I found it out, Forked-Gun had rung off, and I had lost my chance to resent it.

At Corbett a very strange thing occurred. On the second day of our camping there Poor-Face shot a big mountain-sheep ram *in the bad-lands.* The surprising thing was that an old and experienced animal of that species should have been in such shallow bad-lands, and at

least ten miles from the nearest mountains, with open country between. The ram was very old, and his horns had a dead and weathered appearance, as if they had lain on the roof of a wagon-shed for about three years. His hair, also, showed great age and lack of vigor, and was very unlike the splendid coat of the ram that—well, the ram that we saw later on.

Robertson was much provoked that the Indian had shot a mountain-sheep, and the first one, besides; but when he learned that the head had been given to Fleming, the chief packer, who intended to give it to the post surgeon, he decided that Poor-Face need not be killed on the spot for his perfidy.

Without undue loss of time we pulled westward up the Stinking Water (now the Shoshone) to "the Forks," and there in the gnarled cottonwoods of the South Fork, a quarter of a mile from the mouth of the impassable canyon, we made our permanent camp. Quite near by, up on the level floor of the valley, was the cabin of William Whitworth, an old-time hunter and trapper, and a human document dating back to pioneer days. I paid him several visits, and always found his cabin neat and clean, his earthen floor swept and garnished. He spoke in a low, even voice, and told me many interesting things. I realized with a feeling of sadness that he represented a fast-vanishing type, which soon will totally disappear, and be known no more save in the history of the wild West.

At the earliest possible moment, Lieutenant Robertson and I took his camera and tripod, and silently stole away to the mouth of the canyon. The two branches of the river came together a few rods above a great wall of bare, brown rock, a hundred feet high, which really is a part of the

southern side of Rattlesnake Mountain. Through a crack in the mountain about as wide as Nassau Street, between perpendicular walls of bare rock, the river swirls and roars down eight miles of black mystery never penetrated by living man. It is said that logs which enter the mouth of the canyon unscarred come out kindling-wood below.

It is idle to believe or to say that the water has cut that canyon, for it has done nothing of the kind. An earthquake did it; my word for it. Had it been left for the river to erode, on its own hook, long before the pent-up waters had started a cutting through that flinty carboniferous limestone, the river would blithely have gone southward around the mountain, where the wagon trail runs, and found easy flowing, with no rock to excavate.

We went into the dark and gloomy mouth of the canyon, as far as any man may go, and soon were stopped by the lack of footing. Fifty feet farther on, the rift turned sharply to the left, taking the foaming waters along with it, and the view ended against a blank wall. Quite near the ultimate point we smelled a strong odor of sulphureted hydrogen and other disagreeable gases, and looked about. Close at hand, under the foot of the overhanging wall of smooth rock, lay a little, innocent-looking pool in a basin no larger than a bath-tub, which was the cause of the bad odors. Close beside it lay a dead porcupine and a dead magpie, both poisoned by those noxious gases. Elsewhere they would have been eaten long ago by coyote or fox; but there beside that deadly spring they lay, untouched.

As we viewed the remains, we remembered the story of the man who went bathing in the pool of a warm spring near the lower end of the canyon, and was killed in his bath

by the poisonous gases of the place. On Alum Creek, in the Yellowstone Park, Mr. W. H. Weed, of the U. S. Geological Survey, once found the fresh remains of a large grizzly bear who had been killed by deadly gases while passing up the narrow valley on a lawful errand.

After the Lieutenant had photographed the mouth of the chasm, we returned to camp and held an indignation meeting. Despite the incident of the sulphur spring and its victims, we all voted unanimously that it was a burning shame that an unsullied mountain stream with waters cleaner and clearer than the water supply of any city in the world, and absolutely odorless, should longer remain under the libellous handicap of such a name as "Stinking Water." We decided that that name must go. After a long preamble, we resolved that the stream should be renamed and called the Shoshone. To this moment, I can hear the very tone in which Lieutenant Robertson closed the discussion by saying with emphasis:

"Well, gentlemen, *'Shoshone' goes!*"

When again in Washington, I went to Mr. Henry Gannett, of the U. S. Board of Geographic Names, and filed the protest of the party. He said, "Any change of that kind should be asked for by the residents of the region affected." And I said, "Well, they want it" (we had spoken to the Greens and Marston and Sharrock about it), "and they ask it now, through me, as their personal representative."

Mr. Gannett said that he would see what could be done. To this hour, I do not know how much or how little our action had to do with the result; but at all events, it has come about that the name was changed, and the Stinking Water River of that day is now called the Shoshone.

Every hunter of big game will tell you that there are certain experiences which come but once in a lifetime. The glow and exaltation of the day wherein he hunted and killed his first tiger, his first grizzly bear, moose and mountain sheep never can be felt twice over the same species. I have had many opportunities to tell the story of my great first day after mountain sheep, but the impulse to set it down on paper never came to hand until now.

North of our camp, from the river's ice-fringed bank rose Rattlesnake Mountain, 2,000 feet high (so we guessed) and as steep as the roof of a house. Along its base grew quaking-asps and birches, and above that, lodge-pole pines climbed up the gulches, and straggled thinly along the steep slopes. Along the crest of the mountain, which above the Forks was about four miles long, there ran a precipitous wall of light grey rock two hundred feet high, of the form known throughout the West as rim-rock.

As we sat on our horses in front of Charlie Marston's comfortable log-cabin, and looked for the first time up that steeply towering height, some one remarked:

"Well, gentlemen, here's hoping that we won't have to climb up *there!*"

The next moment Lieutenant Robertson said:

"Marston, where shall we go for elk?"

"Right up *there,*" said Marston, calmly pointing up the steepest portion of the mountain!

The next morning we went up. Our start was a trifle late, and the way we struggled with that mountain during the next two or three hours was an experience not to be forgotten. Two miles from the river we had to dismount and scramble up on foot. From high living and insuffi-

cient exercise, our muscles were soft, and for a little, simple climb, that mountainside was absurdly difficult.

The real trouble lay in the footing. Nearly the whole mountainside was covered with clean, angular limestone, broken into pieces the size of egg coal, and lying loose. The action of the weather had brought it down from the rim-rock, and it constituted what is called "slide-rock." Going up over it was like climbing a pile of egg coal fifteen hundred feet high, covered with three inches of light snow. In every step upward, one ploughed back half a step.

Of course we led our horses by their bridles. At first we rested every hundred feet, then every fifty, and at last every twenty-five. Our hearts beat as if they would burst our veins, and our faces turned scarlet. But for a tiny spring that we found half-way up, we would have suffered from thirst.

My horse was a gallant and strong bay, who led not wisely but too well. Owing to the horribly bad footing, the fierce upward rushes of the horses often brought him upon my heels, and I had hard work to keep him from laming me. At last his crowding upon me became intolerable, and I decided to let him rush past me to a position at the heels of the next horse in the line.

As he scrambled past, the slide-rock flying downward from his iron-bound hoofs, an inspiration came to me. Why not fling Appearances to the winds of Wyoming? With great presence of mind I reached forward, seized Van by the end of his flowing tail, and shamelessly held on. I made him help me up, and the noble fellow did not resent it in the least. On the contrary, he entered into the arrangement so willingly and so cheerfully I became convinced that it was precisely what he had desired and

advised from the start, but I was too stupid to understand. I needed one of the modern animal-mind-readers to help me out.

Dear old Van! It is impossible that he should still be in Troop A of the First; but he was a fine horse for a hunter, and I wish him well.

Our first day on Rattlesnake Mountain was a blank. We topped the summit exactly opposite a band of elk that was feeding in the pine timber near by, at the edge of a mountain park. But our slow and noisy struggle upward over the slide-rock and the wind in their favor, had notified them of our coming, and they fled so promptly and so far we did not even get sight of them.

The long trip up and down in one short day meant a ruinous loss of time. That night, as we gathered around our mess-table, and feasted with outrageous hunger, I said:

"Gentlemen, to-morrow night I sleep on the top of Rattlesnake Mountain."

"You're quite right," exclaimed Robertson, promptly. "I'm with you!"

At daybreak, Robertson, Fleming and I, with one pack-mule, forded the river and started up. We were tenderfeet no longer. Our climb of the previous day had done wonders toward getting us into condition; and we went up in excellent form and fairly quick time. As we paused at the spring to drink, and look back at the beautiful panorama spread out far below, we saw two mule-deer standing like statues on the outermost point of a rocky bracket of the mountain that thrust out into space an eighth of a mile below us, and to the right. They had been interested spectators of our climb aloft, and watched us intently as long as we had time to look at them.

At last we climbed the topmost ten feet, and stood upon the edge of an open glade that spread over eighty acres of the summit plateau. Looking westward, we saw no life. Looking eastward—on the highest point of the plateau's edge were two more wild-animal statues.

"Well, if that don't beat all!" exclaimed Robertson very softly.

Half a mile away, across an expanse of silvery snow, immovable as marble, stood two old mountain-sheep rams, intently regarding us. They, too, had been interested spectators of our toilsome ascent. They did not run, because they knew they were far beyond rifle-shot.

Robertson said, "You never have killed a mountain-sheep, and I have. They are yours. You go for them, and Fleming and I will take a look off in the other direction. If we don't meet before night, we will camp down yonder, in the edge of those pines. Good luck to you!" And one of the best fellows I ever hunted with quietly headed westward, followed by Fleming and the pack-mule.

Left to my own devices, and a chance for a mountain-sheep, it took only a moment to plan a course that seemed to lead away from the sheep, a hidden detour in the timber, then a stalk toward the ram-infested point. The snow was about knee deep, but thanks be! there was no crust worth mentioning. When about opposite the Point of Sheep, I tied Van in the timber, and with as little delay as possible stalked forward to a clump of stunted cedars which I had marked down as a possible firing-point.

As I expected, the sheep had moved, and were no longer visible. When fully assured of this, I brought Van up to the cedars, tied him in a good situation, then entered seriously upon a hunt for my missing rams.

There are scenes which impress themselves upon the mind of a hunter with a degree of sharpness second only to that of a photographer's negative. That day produced many such. Looking westward from the spot where the mountain-sheep had posed for us, there sloped away a field of frosted silver, its immaculate surface criss-crossed by game-trails where many an elk and mountain-sheep had ploughed through the snow. The tumbled snow in the furrows caught and reflected the rays of the cold November sun, and the trails glistened on the smooth snow-field like a net of burnished silver laid on a sheet of hoarfrost. Near at hand I saw two spots, each ten feet in diameter, where the two mountain-sheep of my desire had recently been pawing through the snow to get at the tall spears of bunch-grass that thrust up bravely from below. As a place to dine, that snow-field looked anything but inviting; but of this, more anon.

Of course I set out without delay to follow the trail of my rams. Their trail through the snow was so plain that a blind man could have followed it—provided he could wade or wallow. Naturally, I expected to overtake my game in a short time, for there was no sign that it had been seriously alarmed. The rams had simply grown weary of waiting for me, and strolled off leisurely along the edge of the rim-rock.

After half a mile, the trail suddenly dropped over the edge of the rim-rock, into the head of a terribly steep notch, and went plunging down. Smothering my regrets, I followed it, and in course of time scrambled down to the base of the precipice. For a short distance it led on eastward along the foot of the wall, then blithely skated off diagonally downward across the loose slide-rock, as if heading

for the mouth of the canyon. After a descent of three hundred feet or so, I said:

"This will never do! Up or down, they can go ten feet to my one. I must find them by head-work, or not at all."

Turning abruptly, I headed upward into another notch, and presently stood once more, breathless and perspiring, upon the summit of the rim-rock. Then I set out to find my game farther on, somewhere at the foot of the rim-rock wall, two or three hundred feet below.

Of that fine fringe of rockwork I inspected every yard. Where the plateau thrust ragged, wedge-like points far out into space I cautiously stalked out upon them, knelt, and peered over the edges in both directions, as far as it was possible to see.

Hours passed thus; but no sheep. All along, I had stolen glances at the scenery, but at noon I sat down upon a dizzy point, to revel in it, and incidentally to rest. There are times when it is good to be absolutely alone; and that was one of them.

"This," I said, "is truly the home of the Big-Horn, the gallant mountaineer of the Rockies."

Two yards beyond my feet, the perpendicular wall of rock dropped to the head of the first slope. From that, the finely-broken slide-rock sloped down so steeply it seemed from above as if nothing could stand upon it. Far below, the narrow valley of the Shoshone lay like a map, with a ragged grey line of naked trees and bushes marking the windings of the river. Across the valley another mountain rose, seemingly very near at hand. Beyond that lay another valley—that of the South Fork—backed by a distance which was quite filled with snowy mountain-tops. With my glasses I could make out the two Sibley tents of

our camp, because I knew where to look for them; but the sod roof of Marston's log cabin was quite invisible. Two miles away toward the left yawned the narrow, black mouth of the Shoshone Canyon, hemmed in by rugged mountains of solid rock.

Behind me, on the plateau side, there rolled away for a dozen miles a glorious succession of rounded hills and hollows, and patches of dark-green pines alternating with open glades of frosted-silver snow. That was indeed a "mountain park," and it is small wonder that the bands of elk love such spots. Even in winter the glades offer delicious grass, and in times of danger the whispering pines stretch forth their sheltering arms. At all times the wild, uncommon beauty of it all must appeal even to the heart of an elk. A perfect mountain park, in the most beautiful portion of the Rockies, must indeed be seen to be appreciated; and when seen even once, it never can be forgotten.

The scene was so inspiring that its main features then and there demanded rhythmic expression, on the back of an envelope; and this verse was dictated to me by my surroundings. All I did was to write it down!

Above the mountain's frowning crest,
  Where lines of rugged rock stand forth,
Where Nature bravely bares her breast
  To snowy whirlwinds from the north;
High in the clouds and mountain storms,
  Where first the autumn snows appear,
Where last the breath of springtime warms,
  —There dwells my gallant mountaineer.

But just then the burning question was—Will I find

him, or will he continue to dwell? Regretfully recalling to mind what Robertson and the others expected of me, and the reputation which I had to sustain, I pulled myself together, and renewed my hunt along the rim-rock.

Not a square yard of the ground below escaped inspection. *Why* did not those sheep come up again? Surely they would not foolishly rush into the jaws of death by seeking the lower rocks, opposite our camp. It seemed clear that they must and would return.

I worked on eastward until at last the rim-rock ran out altogether; but still no sheep! I was sorely puzzled, and began to feel a horrible fear that after all I might prove myself a bungling sheep-hunter. Think of the disgrace that a failure would bring down upon me, after Lieutenant Robertson had so graciously made me *a present* of those sheep! The case was rapidly growing desperate.

Looking off northward across the top of the pine timber, I saw a mass of smooth rock rising above the trees, like an islet coming up out of an evergreen sea. It was perhaps a hundred feet high by a quarter of a mile long, and by no means an ideal haunt for sheep. But, remembering that I am one of those who cannot always tell precisely what wild animals will do, or why, I trudged off through the timber to hunt conscientiously all along those rocks.

By that time, however, I had become thoroughly weary. In addition to climbing the mountain, I had been for several hours steadily wading through sixteen inches of heavy snow—which, after the first two hours, is a serious matter. I knew that, according to the well-known and oft-recorded recipe—"get above him"—I should climb to the *top* of those rocks, and look down; but I was so dead tired that

I said, "What is the use? There are no sheep here!" (And *at that moment* I was right.)

Slowly and wearily I ploughed along to the farther end of the rocks, saw no living thing save a solitary magpie in flight, then turned and waded back again. In the pine timber the snow was somewhat deeper than in the glades, and by the time I once more reached the western end of the ridge I was well fagged. As I was turning away from the rocks, to strike through the timber back toward the rim-rock, I turned—purely as a matter of hunter's principle—for my *very last look* at the end of that ridge.

"Carramba!"

On the highest point of the rocks, with big, circling horns sharply outlined against the sky, there stood at that very moment a grand old mountain ram! He was statue-like, with his front feet braced slightly apart, staring in wide-eyed wonder and curiosity down *at me!* He was not more than three hundred feet distant, and the old fellow's astonishment at suddenly seeing me there, wallowing in the snow, was very great. He had walked up to the summit from the sloping northern side, solely to survey the landscape, and see what he could see.

Quickly swinging my shoulders a quarter way round, I flung up my rifle, and with a mighty quick sight on the centre of the ram's breast, let go. It was all done while you would count three. Instantly the big sheep wheeled about, and vanished.

It was clear that I ought to rush forward, triumphantly bound up the nearest notch leading to the top, and in a trice stand on the summit; but I simply couldn't do it! My legs were so dead that I could do no more than wallow

forward at the pace of an elephant-tortoise, and hope for luck. Besides, I thought that hurrying wasn't *really* necessary; for I felt sure that that old ram was mine! Sometimes a hunter feels that way after a shot; and it is a pretty good sign of dead game.

At last I climbed up to the very spot where the sheep had stood when he looked at me. His trail was there, on the snowy rocks, leading forward and back; but nothing more. Not only was he invisible, but there was not even one drop of blood; and he had gone away in great leaps. But still I felt certain of him, and of course set out to trail him.

A hundred feet from where he had stood when he looked at me, the head of a wedge-shaped notch was cut into the rocky hill-top, and drifted half full of snow; and on the brink of that the trail ended. In the head of that notch, thirty feet below, lay my splendid mountain ram—dead, for a ducat. With his last energy he had leaped from the edge, *died in mid-air,* and landed in that soft bed of snow so completely lifeless that he had not moved a hoof. If his dead body had been flung down he could not have landed more perfectly motionless. My bullet had fairly telescoped him. It went through heart, liver and stomach, and lodged in one of his lumbar vertebræ.

Did I think him a grand sight? Truly, I did; and I opine that it was better for me to gloat over him then than for a mountain lion to do so later on. I am no Hindoo, and even yet I have not reached the point where I feel that it is always wrong to kill a wild game animal, especially where wild animals are yet fairly plentiful. I had travelled quite 2,000 miles, spent several hundred dollars for that one shot, and in the Shoshone Mountains sheep

were then sufficiently plentiful that the taking of even half a dozen rams would not have threatened the existence of the species. It is very different now.

First I sketched him, just as he lay, then measured him, elaborately. His height at the shoulder was 3 feet 4 inches, his girth 44, and his horns were 14½ inches in basal circumference. Then, and not until then, did I fully appreciate the splendid physique and noble personality of our Big-Horn. How very, very different he was from all the mounted specimens in the museums—as different as a new Rogers locomotive is from a worn-out steam-roller. His pelage had a clean, rich, *purplish-blue* tone, and I was astonished at finding from him how much all museum mounted specimens fade out.

His stomach was round and full from good feeding, and his neck and legs were a revelation. I was glad that at last, even though at the price of a little blood and treasure, I had secured a fair and adequate appreciation of the splendid physical qualities of *Ovis canadensis,* and thereafter could think of this noble species as it really is on its native rocks.

When again I left those rocks, and started for my horse, I had not gone far when I came upon the trail of the two rams of my quest crossing my own tracks, and heading straight for the fatal spot. The old fellows had climbed up to the top of the rim-rock only a *few minutes* after I left its edge, and at very nearly the same point. Seeing that rocky bluff rising above the timber, they had gone straight toward its nearest point—just as I had done! Had that old fellow failed to pose on the summit as he did, in time for the last sigh of the Moor, I would have found their trail five minutes later, and blithely would

have followed it to a finish, to the very best of my ability.

In a very cheerful frame of mind, I waded back to Van—who said he was very glad indeed to see me again—and soon found Fleming, already making camp at the appointed spot. He was visibly rejoiced by my good luck, and taking the pack-mule, we hastened back to the sheep. Being strong men, Fleming and I thought we might by good management hoist the ram bodily upon the pack-saddle, and carry it to our bivouac, to show Robertson, and afterward dissect at leisure; but we couldn't do it. The sheep was so heavy and so limp we were utterly unable to lift it upon the mule.

We then skinned the ram, and dressed the carcass neatly, after which we were able to pack both meat and skin upon patient Long-Ears. On opening the stomach we found within it fully half a bushel of half-digested bunch-grass, showing that the efforts of the sheep in pawing through sixteen inches of snow for its food had been entirely successful.

We reached camp just at sunset, and soon made ourselves comfortable for the night, with a deep bed of balsam boughs, laid in a snowy excavation. Robertson did not appear, but we knew there was no cause to worry. Fleming saw him kill a sheep, and go chasing down the mountain after a second one (which he secured), so we felt sure he had waded the icy river and gone on to camp rather than climb back to our lofty lair in the snow.

The night was stinging cold, but beautifully clear. After we had dined on a perfectly scandalous number of mountain-sheep steaks—as fine a dish as ever cheered and comforted a hunter—and given our faithful animals their oats, we crawled in between many army blankets, tied our

fur caps over our ears, and were lulled to sleep by the sighing of the cold mountain breeze through the tops of the pines.

V

THE WILDEST CORNER OF MEXICO

The desire to kill big game for sport in a region that is totally uninteresting and devoid of the picturesque, implies a genuine blood-lust that is fairly deplorable. There are men who can hunt the white goat in the Rocky Mountains and see nothing but the goat; and after the goat has been killed, the beautiful mountains are nothing.

On the other hand, there are men who think that killing great numbers of giraffes, rhinoceroses, zebras and hartebeests, waterbucks, gnu and gazelles on the flat and uninteresting plains of East Africa is very great sport.

To sportsmen who keenly enjoy the picturesque aspects of Nature, it is occasionally possible to become so fascinated by scenery and plant life that even the finding of big game becomes a secondary consideration. I am sure that had Doctor MacDougal, Mr. Phillips, and I been obliged to choose once for all between photographing the Pinacate region and the hunting of mountain-sheep therein, we would unhesitatingly have chosen the picture records of that wonderland.

In that great lava-field, and around it, the handiwork of Nature was weird and unearthly, beyond compare. That trip of ours was like a visit to the moon, or to Mars. To me there was not a shrub, tree, water-hole, valley, peak, nor even a blade of grass that was of a familiar type, save the few species of desert trees and cacti that we met on the way down the desert from Tucson, and found repeated on the lava. It was the first time in my life wherein I achieved

surroundings in the plant world in which there was not even one old acquaintance. Even the prickly-pear of New York and Montana was totally absent, and in its place were various queer species of *Opuntia* that I never before had seen.

The penetration of that lava-and-dead-volcano district cost us many a long mile of desert travel. There was a time wherein it seemed as if we never would make an end of circling to the left around grim and black old Pinacate, at a radius of fifteen miles from its summit. At last, however, we did achieve the Tule Tank, seven miles into the lava field and eight miles from the summit of the Mystery. We were a long way from any tules, but with a good supply of delicious water in the lava-bound basin, and enough galleta grass for our horses, we cared naught for names. It was from that camp that we went to the summit.

I must pause here long enough to explain that we were bent on the exploration of an unmapped, undescribed, and unknown region in the north-western corner of Old Mexico. It is the angle that is formed by the north-eastern shore of the Gulf of California and the International Boundary. The trip was planned and led by Doctor D. T. MacDougal, Director of the Desert Botanical Laboratory at Tucson, and for companions-in-arms we had Mr. John M. Phillips, of Pittsburgh (and "Camp-Fires in the Canadian Rockies"), and Mr. Godfrey Sykes, of Doctor MacDougal's official staff. At Sonoyta, Mexico, we were joined by Mr. Jefferson D. Milton, U. S. Inspector of Immigration, who entered with keen and intelligent interest into the various objects of the expedition.

Primarily it was a geographical exploration, with Mr.

Sykes as civil engineer and geographer, and after that it was a botanical-zoological-big-game reconnaissance. With a record of more than 200 years for the little oasis of Sonoyta, the Pinacate region, fifty miles westward thereof, had remained a complete mystery; and the longer the Doctor sought detailed information at Tucson, the less he found out.

As we had suspected, we found that the reasons for the Mystery of Pinacate were water and grass. In dry years the water-holes are dry, the grass is burned up by the fierce heat, and the place is completely inaccessible, save to the Papago Indians. In any desert region the distance to which a horse can go and return, carrying water for himself and his leader, is not great. Most fortunately for us, the year 1907 was for that region "a rainy year," and we found enough water and grass so that we had no real trouble whatever. True, our horses and mules came out looking gaunt and thin, and feeling "used up"; but rest and plenty of food soon put them to rights again. We had a grand outfit—large enough to do everything required, but also small enough to be perfectly mobile.

When we struck the eastern edge of the great lava fields, at the point where the Sonoyta River also strikes it and turns southward to avoid it, we semicircled northwestwardly along its border. We kept on circling, until finally we discovered MacDougal Pass, the great crater at the south end of it, and came abruptly against a lava barrier so impassable that the wagons had to be abandoned. By pack train we went on to the Papago Tanks, found for us by Messrs. Milton and Daniels, and there we camped for a week.

It is a pity that those weird Papago Tanks—then well

filled with delicious water—do not command the summit of Pinacate, and the shore of the Gulf; for if they did they would form an ideal base. But even though they are too far north for that, they form the key to a really grand situation. Four miles west of them is the end of MacDougal Pass, the group of grey-granite mountains that were named in my honor, the grand crater that so astonished us all, and the edge of the sand dunes of the Gulf shore. Four miles north of the tanks there descend four more deep craters—one of them very deep—surrounded by various peaks of red lava that once were parts of active volcanoes.

The whole region down to the sand-hills is *lava,* and nothing else! Its total diameter is about thirty miles, and from its centre rises, like a black pyramid, the group of highest peaks that is called Pinacate—after a big black beetle of the desert that always stands on its head when it is disturbed. The name is pronounced Pe-na-cat'ty. The central group of peaks is surrounded by a plain, which everywhere rises toward the centre. Mr. Sykes says that according to his best count, he estimates that the district, as a whole, contains at least 500 lava peaks and cones and deep craters, each of which represents what once was an active volcano.

It is painfully impossible to set forth within the limits of a dozen pages an adequate statement of even one-tenth of the interesting features of that weird region; and the utmost that I can do is mechanically to pick out a few scenes, and briefly throw them upon the screen. The natural features, and the works of Nature *in progress before our eyes,* so far surpassed in interest our mountain-sheep hunting that the latter seems in comparison quite trivial.

From a photograph by D. T. MacDougal.

The Papago Tanks.

Two of the pools in the clean, brown lava rock. Fifteen miles from Pinacate Peak.

From a photograph by D. T. MacDougal.

Camp in the Papago Tanks Oasis. All the Trees are Mesquites.

Sonoran Desert Vegetation. Doctor D. T. MacDougal.

From a photograph by J. M. Phillips.

MacDougal Crater from the Southeast.

The sand dunes rise into view in the middle distance, around the half-buried granite butte on the left.

The sheep, however, are to the zoologist and sportsman extremely interesting products, for they represent the great genus *Ovis* at one of its jumping-off places in America.

Crater-hunting is most exciting sport. It beats mountain-sheep hunting literally "out of sight!" Mr. Sykes cared not a rap for hunting sheep with any other weapon than a camera, but as a crater-hunter he was great. His thrilling successes made our sheep episodes look like child's play. Each success was to him as the discovery of a new species is to a zoologist. And the way he went down to the bottom of every crater that he found, and measured it, and mapped it, and possessed himself of it for all time, actually filled the souls of the rest of us with unspeakable envy—as well as admiration. Now, I would not have climbed down to the bottom of that "Deep," since named Sykes, Crater, 750 feet and 300 risks of a broken neck—"not for *no* money!"

As a spectacle, I am inclined to think the grand crater, close beside my mountains—the one that we afterward named MacDougal Crater—surpasses the Sykes Crater; and the cameras fully support this view. With four plates in a row the cameras got the former, but in the presence of the Sykes Crater they all bogged down completely. Even Doctor MacDougal's panorama fails utterly to convey an adequate conception of the reality. The camera that can go down 750 feet, at an angle of 70 degrees, and also catch the rim, has not yet been invented.

As a fair example of crater-hunting, take the rosy dawn of the morning after we camped beside my mountains, in the extreme southern end of MacDougal Pass.

No sooner had the hunters of the party scattered for their several ways than Mr. Sykes suddenly appeared

again, riding rapidly toward Doctor MacDougal, Mr. Phillips and me, waving and shouting.

"Come up this way," he cried. *"There's a huge crater,* just at the top of this ridge! *It's grand!"* And back he went again, as fast as his horse could go.

We quickly turned and followed the geographer up a brown slope covered with small lumps of lava, toward the crest of what seemed to be a perfectly innocent ridge. On reaching its summit, like a picture thrown upon a screen, an immense crater suddenly yawned at our feet! Its rim was almost a perfect circle, two miles in circumference, and its top was nearly level. Its diameter at the top was about three-fourths of a mile.

Far below, a floor almost as level as a lake spread across the abyss. Its surface was of clean, yellow sand, but a dark area in the centre looked like moisture that had settled there during a recent rain. Evidently the sand which covered the floor had blown in from the near-by sand-hills of the Gulf littoral.

And that crater floor was most strangely planted. It was actually fascinating to see, with such clearness of detail, how Nature had gone about her work. Each item of the planting was so separate and distinct that with the aid of a moderately good glass one could have counted the individual plants, even from the rim. In places *the things were growing in rows,* radiating from the centre outward; and I particularly call upon the long lines of creosote bushes in the southern end of the crater to bear witness to the truth of what I say. I think this has been brought about by the wash of water from the steep sides of the crater flowing toward the central area.

The sandy floor was stippled all over with tiny creo-

sote bushes, like dark-colored dots on pale-buff blotting-paper, very far apart. This, evidently, is the most persistent and hardy Pioneer of the Sand. The mesquite had climbed down the walls of the crater, from every direction, and had marched about one-third of the distance out toward the centre. By and by, say in twenty-five years from now, they will meet in the centre. The eye easily picks them out by their greater height and larger mass than the creosote.

The oddest thing, however, was the invasion of the *sawarro,* or giant cactus. Its advance guard found it impossible to climb down the steep walls, but at the south-eastern side of the crater they found a deep notch, and through that breach they were swarming in. About fifty of them had "made good" by getting down upon the crater floor, and they were marching forward in irregular open order, to capture the place. A few skirmishers had ventured out fully half way to the centre, but the main body was back near the breach in the wall, as if to keep in touch with the one line of retreat. There was not one *suwarro* anywhere else (that I saw) on the crater floor. The invaders were just like so many soldiers in lightest fighting order—small, straight, and quite limbless.

Mr. Sykes lost not a moment in climbing down to the floor of the crater, taking its altitude, and measuring its diameter by pedometer. He reported it as being 400 feet in depth below the rim, 50 feet above sea-level, and 1,200 feet in diameter on the bottom. As he paced across the floor, he looked like the terminal third of a pin, and it was with much difficulty that the unaided eye could pick him out. On the bottom he saw a jack-rabbit, several doves and a small rodent.

This crater was not so very deep, and its sloping walls were in many places quite practicable for a good climber. There are many craters that are larger than this, and in comparison with such gigantic manifestations as Kilauea or Mauna Loa in Hawaii, this is a mere saucepan. For all that, however, as desert craters go, it is a big one, and the perfection of its modelling is thoroughly satisfactory. Excepting its floor, it is exactly as it was when the last ton of lava was thrown out, and the fire was permitted to go out because there was no more work for it to do. Unquestionably, on the western side of the crater, there is plenty of lava buried under the sands that have blown up from the Gulf; but at the present the only visible work of this crater, of any decided importance, is the lava field toward the east, which boiled out through the notch, and ran toward Pinacate for two miles or more.

That crater was the leading sensation of the day. When the teams arrived opposite the point of view, the men leaped from the wagons and fled up the lava-covered slope to the sky-line, for a share of the wonder. At imminent risk to the safety of "Bill" and "Maude"—the leading mules of our stock company—the whole party of men and dogs strung itself along the rim, vainly striving to absorb into their systems an adequate impression of the wonderful scene. Early in the game three photographers got busy, but it took Doctor MacDougal's heavy artillery to do the subject justice. Of course no camera could take in the entire crater, nor even the half of it, on one plate; so each of the real photographers made a three-section panorama. Their pictures are very good, especially when put together in a strip two feet long; but when an effort is made to reduce all that down to the length of a page

illustration, the grandeur of it goes all to pieces, and the reduction is a tame spectacle.

It was while we were admiring the crater at the rate of twenty interjections per minute, and the two rapid-fire cameras were working their hardest, that we were startled by two thundering reports coming from the notch, just out of our sight, southward. As the roar of the shots rose on the still air, resounded through the crater, and undoubtedly travelled far beyond, we all looked at each other in astonishment.

"Who was that?"

"It must be Daniels and Charlie."

"They must have found some sheep in that notch!"

So they had. When Rube Daniels amused himself—quite contrary to the laws of the hunt—by "shootin' at some rocks over there," his shots raised five mountain-sheep and also the largest disturbance that I ever saw in a hunting party. Incidentally they frightened the sheep quite out of that neighborhood, and nullified an otherwise fine hunt on the following day in the granite mountains that rose near by.

Though we should all live a thousand years, I am sure that no member of our party ever could forget the Papago Tanks—so named because their tiny oasis once was a favorite halting-place for the Indians of the Sonoyta Valley as they journeyed to and from the Gulf shore for supplies of salt. I expected a muddy pool in an alkaline arroyo, bad water, and many wigglers among those present. As usual in that blasted country, nearly all the items of my bill of expectations were wrong!

We found three glorious pools of clear, cold water, in deep basins of speckless basalt—or lava rock, to be strictly

precise—walled in most carefully by immaculate natural masonry. The walls of the upper pool rose about thirty feet above the water, but for the larger pool one side had most humanely been left open to admit mountain-sheep, antelopes, coyotes, tired horses and thirsty dogs. The lava rock of the walls was of flinty hardness, dark bluish-brown in color, and it glistened like vitrified brick. The water in the horse's pool seemed abundant, but even during our short stay there we lowered it about eighteen inches. The supply could have been quite exhausted in six weeks. A bunch of thirsty range cattle could drink those pools stone-dry in less than two weeks. The nearest water to the north is about twenty-five miles away, at the Represa Tank, and on the south the Tule Tank is about eighteen miles distant —if you know where to find it. If you don't know, it may possibly be as far as from you to the Styx.

I never before saw cameras break down, and go all to pieces, as they did in those Pinacate lava fields. All told, we had five machines, of all degrees of difficulty, but not one of them succeeded in making a long-distance picture of the worst of those lava fields that was a genuine success. It was the dull-brown monochrome, only very slightly flecked by the green of mesquite and palo verde, that defied all the attempts of lenses and boxes to dig out their details. If cameras could think and feel, and our five could know the extent to which they were baffled by the conditions existing there—including the fine sand in the atmosphere—they would become raving maniacs.

Excepting for the little oasis below the Papago Tanks —of about a square mile's area—the whole Pinacate lava district, say thirty miles in diameter, was absolute lava and volcanic ashes, and nothing more in the line of soils. In

places there were wide plains, three or four miles in width and generally level, on which the lava was so fine that horses could march over it very easily. In years enough, when the process of lava disintegration has gone much farther, those plains will be covered with what will appear to be soil.

But there are miles upon miles of clean, fresh, naked lava, almost destitute of trees and shrubs, whereon the roughness is indescribable. There are places over which it is impossible to lead a horse. We saw great ridges of lava, like the pressure ridges of ice in the far North, upheaved, contorted, ragged beyond words, and so fresh and sharp it seems to have cooled only yesterday. Clinkers and cinders and slag, fresh from an iron-mill, are no more rugged and ragged than the lava of those ridges that seemingly lie there glowering and cursing the sky in impotent rage.

Over this awful desolation, Nature is bravely and persistently striving to throw a soft green mantle of plant life. The struggle is magnificent, no less. On lava as naked and inhospitable as the steel-clad deck of a man-of-war, in defiance of the terrors of fierce heat, absolute thirst and blazing light, you will find the beautiful white brittle-bush (*Encelia farinosa*) gloriously growing as if all its wants were fully supplied. Each plant stands aloof and alone, its hemisphere of tender branches covered with a thick mantle of clean, white leaves. Ten feet away from it you may find a solitary giant cactus, shorn of its forty or fifty feet of stature, branchless, and by the awful dryness of its surroundings reduced to a club-shaped stem only eight or ten feet high. On the lava field they grow very far apart—miles, mostly—but they climb up Pina-

cate to an elevation of 2,500 feet or more, and are in evidence within two miles of the highest summit. Bigelow's abominable choya cactus is even more persistent, and wherever found its room is better than its company.

Like promises of better days to come, the beautiful palo verde ("green tree") and the ever-welcome mesquite bravely claim their place at wide intervals in every arroyo, or wherever any lava basin gathers water and holds it long enough to do good in this thirsty world. On the worst of the lava fields they are reduced to weak little bushes a yard high, but in the Papago Oasis, where water is held up for a time, they make trees fifteen feet high. The mesquite is the great wood-producer for the desert campfire.

The creosote bush successfully defies the sands and disintegrated granite of the desert plains, but it likes not the lava, and is hardly to be counted as a habitant of the volcanic district.

On the lava plains there grow picturesque clumps of the nigger-head cactus, a small pineapple-like species related to the famous barrel cactus (*Echinocactus*), covered with a tangle of long, curved spines.

The four-footed animals that inhabit lava-land are by no means too numerous to mention—but far be it from me to offer an "exhaustive" list. We saw the old-fashioned big-horn mountain-sheep (*Ovis canadensis*), the prong-horned antelope (*Antilocapra americana*), the coyote (*Canis mearnsi?*), the Arizona jack-rabbit (*Lepus californicus eremicus*), the desert cottontail rabbit (*Lepus arizonæ*), and the white-throated pack-rat (*Neotoma albigula collaris*). The desert kangaroo-rat, so common on the desert plains, especially in sandy situations, was

quite absent from the lava, for obvious reasons. Its tiny paws were not fashioned for digging through lava. A flock of doves came to the Papago Tanks one evening at sunset and drank, and on the lava we saw a few Gambel quail.

So far as I can remember, the above enumeration includes all the mammal species that we observed in the lava region, and it is my impression that our list of the four-footed habitants of the lava is not far from being complete.

After nearly a week at the Papago Tanks we made up an extra-light pack-train, and made a long cast southward and south-eastward to find the tank of water which a Papago Indian had described to us as the Tule Tank. "Tule" means "reed." We found no marsh, but luckily for us we did find the tank, and a fair supply of galleta grass within three miles of it; so we blithely went into camp. We were then within striking distance of Pinacate Peak.

By the time we reached the Tule Tank, Mr. Phillips and Mr. Milton had each bagged two mountain-sheep, but the Doctor and I had not yet scored; so, before climbing Pinacate, it seemed necessary for us to make good on *Ovis,* and get that feature of the trip out of the way. Mr. Phillips and I went hunting together, killed two big rams, and until the morrow left them lying where they fell. The next day we all climbed Pinacate. After that, Mr. Phillips, Jeff Milton, and I bivouacked on the mountain, with a lava-ravine-bed to sleep in—or lie awake if we preferred—in order to get an extra early start on the morrow in skinning and otherwise preserving the two dead sheep that lay near us. This incident was quite unexpected, and we were none too well provided for bedding,

but we fared very well. We had a grand camp-fire; and with plenty of sheep liver, artistically roasted over a bed of glowing coals and well salted, we surely "made out."

Very soon after sunrise, we took the dun mule and a pack-saddle, very foolishly *left our rifles at camp,* and laboriously picked our way over the rough lava northward around the foot of the red-lava mountain nearly a mile, to where lay Mr. Phillips's splendid ram. We intended to skin the entire animal, and preserve it for the Carnegie Museum; but alas! the rascally coyotes of Pinacate had visited the remains, and left the body an unsightly wreck. The hind quarters had been completely devoured, and the skin of the body had been ruined past redemption.

The head, however, was untouched. Although Mr. Phillips had entertained no fear of coyotes, in deference to a long-standing principle of caution, when he dressed the carcass he had collected large chunks of lava, and with them completely covered the head. That was all that saved the trophy. Fortunately, my ram had not been visited by the marauders—possibly because of our close proximity to it throughout the night.

We cut off the head and placed it upon "Polly" the mule, for the return journey. Mr. Phillips elected to leave us there, and went off northward for a solitary scramble through the lava, and a final return to camp by a new route. In five minutes the convulsed lava swallowed him up, and we saw him no more.

Mr. Milton and I started to hobble slowly back to our bivouac, and had picked our way over about half the distance when he asked me a question.

"Where did you say you were when you first sighted those two rams?"

I faced a quarter way round to the right, took my bearings, and finally said:

"We were up on the crest of that ridge, behind the tallest mesquite bush which you see, yonder."

Jeff looked, and said, with a satisfied air:

"Oh, yes, I see." And a moment later he added in the most matter-of-fact way imaginable—*"But why don't you shoot that big ram, over there?"*

By all the powers, there stood in full view on the crest of a lava ridge, and not more than two hundred yards to the left of the bush at which I had pointed, a splendid mountain-ram—a "bunger," for fair! He posed on a high point, statuelike, head high up, squarely facing us, outlined against the sky, and staring at us with all-devouring curiosity. At that moment he was quite beyond fair rifle range; and we were without our rifles! What fools these mortals be!

I looked at him through my glass, and he stood as still as an iron dog. Not once did his gaze leave us, not once did he wink an eye or move an ear; and, dear me! how grand he did look! It seemed as if he owned the lava field, and had caught us trespassing.

"What *fools* we were—not to bring a gun!" said Jeff, with an air of extreme irritation. I dare say it was the very first time in all his life that Jeff had found himself gunless in the presence of an enemy!

"Well, it don't matter," I said, "some other ram will serve my purpose quite as well."

"*I* believe he'll stay where he is until we can get our guns!" said Jeff hopefully. The wish was the father of the thought.

"Oh, impossible!" I said, "he *never* will wait that long!

It's a long way yet to our camp; and he'll clear out in another minute."

"Well, now, he *may* not! Let's make a try for our guns, anyhow, and see if he won't wait. I'll tie this mule here, where his Nibs can see her, and we'll just quietly slip off after our shootin' irons. I wouldn't be one bit surprised if he'd wait!"

I thought that the effort was absolutely certain to come to naught, and that before we could get our guns and return with them, the ram would be a mile away. To follow him up would be out of the question—because of pressing duties ahead. But Jeff was so cheerful about making the effort that I could do no less than cheerfully join him, and take the chance. It was precisely like the occasion in the Hell Creek bad-lands when, to oblige old Max Sieber, who wished me to see where he "missed that big buck," I climbed after him to the top of a butte—and killed a fine mule-deer, *in spite of myself!*

Milton's feet were almost as lame as mine were; but as fast as we were able we hobbled over the lava to our camp, caught up our rifles, and hiked back again.

"He's there yet!" said Milton, triumphantly, when we sailed up abreast of the yellow mule. "He'll wait for us!"

Then I began to feel an awakening of hope, and interest, and we applied ourselves seriously to the task of making a good stalk. An intervening mound of rough lava offered our only chance of an approach, and when finally we got it in line between ourselves and the ram, he was still there, gazing intently at the decoy mule.

The top of the mound was distant from the ram about one hundred and seventy-five yards. Mr. Milton was on my left, and he deployed in his direction, while I made off

to the right side of the hill. We must have been about a hundred feet apart. There was no such thing as signalling each other, and it was agreed that the first man to secure a fair chance should fire. Knowing the quickness of my good friend Jeff in getting into action with a gun, I let no great amount of grass grow under my feet after we separated.

Evidently I was first to reach a coign of vantage, for suddenly I found the living-picture ram standing full in my view, within fair rifle-shot, squarely facing Mr. Milton's position, and with his side in perspective to me. Aiming quickly yet with good care at the exposed front of the left shoulder, I let go; and like a quick echo of my shot, Milton's rifle rang out.

Instantly the ram wheeled to the right, and—vanished, as if the lava had swallowed him up!

Jeff and I were almost dumfounded with surprise. We expected a fall, a leap or at least a stagger,—anything but swift and total disappearance.

"*Well!* What d'ye make o' that?" said Jeff, with a troubled air. "Can it be possible that *both* of us *missed him?*"

"It begins to look like it," I answered.

With the best speed that we could put forth, we hurried over to the crest of the ridge, where the ram had posed so long, and so beautifully, and with eager glances swept the view beyond it. Not a living thing was in sight. Jeff was more puzzled than before; but for once, reason came to my aid. I said:

"Jeff, it is *impossible* for that ram to have run clean out of sight by this time. He must be somewhere near, either wounded or dead. Look for him lying down. He may jump up and run, any minute."

"We must trail him if we ever want to find him," said Jeff, gloomily.

"Trail nothing! I'm going to hustle off down yonder, the way he should have run, and see if I can't scare him up."

"Well, you go ahead; but I'll follow his trail. . . . See; here it goes!"

I figured that if wounded the ram would be certain to run down hill; so I ranged down and away, over the smoothest course I could find. In less than a hundred yards I turned a low corner of lava rock, and there, on a smooth spot, lay the ram—stone dead, without a struggle. He had been killed by a bullet that had entered close behind his left humerus, ranged diagonally throughout his vitals, and lodged so far back in his anatomy that my utmost efforts in dressing the carcass failed to locate it. He had also been hit by another bullet, but that shot was quite harmless.

Naturally, we were profoundly elated over our success; but I did not recover from the surprise of it for fully a month. Previous to that day, I thought that I had learned some things about mountain-sheep; but my best efforts failed to read aright the mind of that ram. But for the insistence of my good friend Milton I never would have taken one step to fetch my rifle, and stalk that animal; for I believed that the chances of his waiting for us were not more than one in a million.

And now, in the light of the final result, what shall we say of the mental processes of that animal? One man's opinion is as good as another's; and the Reader can judge quite as well as any one. As for myself, I have two thoughts:

First, I think that ram never before had seen men; he did not know what we were, nor that we were dangerous, predatory animals. Next, his bump of curiosity was inordinately developed, and he was fairly fascinated by that Naples-yellow mule *with a big sheep head on her back!* I think he recognized the horns of a creature of his own kind, but the location of them—on the back of a strange mule—was to his simple mind an unmitigated staggerer. His efforts to solve the problem thus suddenly thrust upon him eventually cost him his life and gave me a trophy that will outlast its owner by half a century or more. The horns measured 15⅛ inches in circumference, by 33 inches in length, and their bigness was continued all the way from base to tip. The pelage of this sheep was thin, old and poor. It seemed to be in a shedding period—out of all season for such a change.

With two men, three big sheep heads and two saddles of mountain mutton, our pack-mule and two saddle-horses were loaded down until Plimsoll's Mark was buried out of sight. In order to get on, I was obliged to carry my last sheep head in my arms. At first I resolved to walk, and devote my horse to freighting the trophy; but Mr. Milton said severely:

"Oh, thunder! Get on to your horse, and make him carry you and the head, too. It won't hurt him a bit! Why, with my feet as lame as they are now, I wouldn't walk to that camp over this rough lava for all the mountain-sheep heads in Christendom!"

Even the ride to camp was tedious and tiresome. We arrived about noon, stiff and sore; and for my afternoon's rest and diversion I had to skin four sheep heads, the whole buck antelope which Charlie had brought in (most excel-

lently protected) from our incoming trail, and prepare about fifty pounds of meat for drying. The only thing that sustained me, and really saved my life, was Mr. Sykes's account of stalking a fine mountain-sheep ram that very morning on the north side of Pinacate. He said:

"I was on my way back from my work on the summit [his second trip], and while swinging around that north slope, quite near to the spot where I saw that bunch of sheep, I saw ahead of me a big ram. He was partly hidden by lava, but I saw his body quite plainly. He was lying down, resting himself, and I made up my mind to have him.

"When I first saw him he was about four hundred yards away, and the mountainside there was very bare and open. Well, I tied my horse, well out of sight, got down on my stomach, and wormed my way over the lava until I got within about a hundred yards of where I had marked down my sheep. I raised my head, and saw that he was still there. Finding that he was quiet, and evidently hadn't twigged me, I decided to work up closer; and I did. Lying as flat as I possibly could, I wormed my way up fifty yards farther, to make *real sure* of getting him. I was pretty well blown by that time, and the rough lava was mighty unpleasant to my hands; but I thought the ram was worth it.

"At last, when I had finished a real good stalk and was *quite* near enough, I got good and ready, slowly raised my head and my rifle, and was *just about to pull trigger,* when—I changed my mind, and didn't fire!"

"What! You *didn't fire?* And why not?"

"I saw that I didn't need to. The ram was already dead! *It was the headless body of the sheep that the Doctor shot yesterday!* . . . Then I came home."

VI

HOW JIM AND HANK ROPED GRIZZLY BEARS*

IMMEDIATELY after the event, I read two newspaper paragraphs of the main facts of this story in the Yellowstone *Journal,* but it was not until later that I heard all about it from one of the principals in the affair.

I was revisiting Montana, once more inhaling the fragrance of her sage-brush, and feasting my eyes upon her buttes, her bad-lands and her magnificent distances. Jim McNaney, L. A. Huffman and I had foregathered in the big operating-room of L. A.'s photograph-gallery, at Miles City.

I had not seen Jim since the finish of the great buffalo hunt, when together we scoured the bad-lands around the heads of the Big Dry and Little Porcupine, after specimens for the National Museum.

After the buffalo hunt, Jim went to work for the N-Bar-N outfit (the Home Land & Cattle Company) as cowboy, horse-wrangler, and anything else that might be wanted of a human being on a ranch; and this is the way Huffman described the establishment, in his terse style:

"The N-Bar-N was one of the richest outfits on the North Side—plenty of money, a good range, and no end of dash and 'go' in their business. Their horses all came from Washington and Oregon, in great droves—big, strong, husky brutes. They were wild, too, at first; and it took mighty husky men to handle them. When the com-

* From *The Cosmopolitan Magazine.* Copyright 1904.

pany wanted a thing done, it was to be done, no matter how many horses were killed. Naturally, this outfit attracted to its service the boldest and hardiest lot of men anywhere between the Yellowstone and the Missouri. No; they were not 'bad' men, in any sense, except that they were merciless on horse-flesh. But the most of them were perfect dare-devils. For instance, Jim's special partner in moonshinin' horses, Hank Kusker, used to ride wild steers as a pastime."

Now, Jim is a good story-teller; and as we three sat around Good-Fellow Huffman's camp-fire, he warmed up to his work with the keen interest that attaches to the narration of stirring personal experiences to admiring ex-comrades-in-arms. At last, when the fire-box was red-hot, and Jim on an easy down-grade, he suddenly asked:

"Did I ever write you about that circus Hank Kusker and I had with the four grizzly bears?"

"No, Jim, never a line. All I know about it is what I read in the Miles City paper; and all this time I've been wondering and guessing what you two lunatics really did. Now, what was it, anyway?"

Jim laughed softly at the recollection.

"Well, sir, if I've wished it once, I've wished it a thousand times, that you had been there that day and seen that circus!"

He started in and told us all the facts; and Huffman said afterward that Jim had really enjoyed living over again that unique experience. I give you the story exactly as he told it to us; and every word of it is strictly true.

"Well, you know, after our buffalo-hunt, I went to work for the N-Bar-N outfit. The home ranch is on the Missouri, at the mouth of Prairie Elk Creek, about a hun-

dred miles north-east of our old camp at Hornaday Butte. Let me see. That was in 1888, in the spring. Hank Kusker and I had been out for a week, moonshinin' horses for the outfit, and we'd gathered up about seventy-five head. Of course we were headed for the home ranch.

"We had a mighty nice pack-horse, named Judge, who was just as gentle as a lamb, and a regular pet with all the boys. If any fellow wanted to get trouble on his hands, all he had to do was to abuse Judge, and he would have all the boys onto him in a minute. On the morning of the circus we got up early, and saddled up two of our best horses, putting our pack on Judge, as usual.

"Well, we got started with our bunch of horses, and pointed out to make a short cut across country to the ranch. We had crossed the head of Shade Creek, that runs into Prairie Elk about two miles above the ranch, and were ridin' along quiet enough, goin' up a long hill, with the horses well ahead of us. When the bunch reached the top of the hill, they all jumped and snorted, stampeded, and come a-tearin' back down the hill, heads and tails up, and manes a-flyin'.

"I says to Hank: 'I'll bet you there are some bear on the other side of that hill,' and Hank says:

" 'Then let's go fer 'em!'

"Now if there is anything in the whole world that a cowhorse is afraid of, it's a bear. But anyhow, we put spurs to our horses, and ran 'em to the top of the hill. Shore enough, there were four grizzly bears on the other side, a-runnin' away from us as hard as they could foot it, and about as bad scared as our bunch of horses. By that time the horses were half a mile off, and a-goin' like the wind.

"Well, sir, we were in a regular fix. Neither of us had a gun of any kind. By the worst kind of luck, only that very morning we had put both of our guns into our bed. Of course, old Judge was with the bunch; and even our axe and our butcher-knives were all in that cussed pack. Get it? No, indeed; not without shore losin' the bears; for by that time we couldn't be shore that old Judge was in Dawson County. Why, he was the worst-scared horse in the bunch.

"The only thing we had to fight with was my little two-bladed, pearl-handled penknife—a *woman's* knife, ye know. But we had our ropes, of course, and on the range ropes is the next best thing to guns. Well, we just made up our minds we'd get two o' them bears, anyhow; and as quick as we could, we got down our ropes and put out after 'em.

"In the lot there was a whackin' big old she grizzly, with a cub, and two other grizzlies that were not full grown yet, but purty near as lively on their feet as two wildcats. But we were on good horses, and soon rode right up to the bunch. I yelled to Hank:

" 'Look out for the old one! She'll hurt you if you get close enough!'

"Hank's horse was faster than mine, and he was ahead of me. Well, sir, when we got pretty close up to the little cub, who was fallin' behind, and just a-humpin' himself to keep up, the little cuss began to cry, just like a baby, I swear.

"When the old she grizzly heard the little feller cryin', she just wheeled right around and started for Hank. Her fur was all a-standin' up, turned the wrong way, and I swear she looked as big as a box-car! Hank wheeled his

horse and put spurs to him, on the back track, but the old bear got so blamed close to him I thought she'd get him, shore. I pulled off quick to one side, to let the trouble go past, and she didn't pay any attention at all to me or my horse. Well, sir, I'll never forget the look on Hank's face as he went by me on the back track, and the old bear a-hittin' at his horse's tail nearly every jump. I yelled, as loud as I could holler:

" 'Go it, Hank! Go it!'

"Hank looked over and hollered:

" 'What in blazes *is* that?'

"And I said: 'Keep a-goin' or you'll find out what it is!'

"As luck would have it, Hank's hat fell off. Quick as lightnin' the old bear spotted it, and went for it, and tore it all to pieces. Then I started after the other three bears, and soon ran into them, and split the little feller away from the two older ones. I didn't want him, anyway. I kept right on after the two older ones, and purty soon Hank come up and told me the old one had joined her cub and taken it off down Shade Creek. I says to Hank:

" 'Now for some fun!' So I took one of the bears, and Hank the other.

"I roped at mine, and he got through it; but I pulled up the loop on his hind leg. Well, sir, that bear just sat down and threw that rope off with his front paws, just as quick and slick as a man could 'a' done it with both hands. Bein' free from it, on he went.

"I put out after him, threw at him again, and that time I caught him around the neck.

"Lord, how he did fight! He rolled over backwards, a-clawin' at the rope and a-bawlin' and kickin', with his big black hind feet up in the air, almost bustin' with rage.

The hair on his neck was thick and soft, and the rope held tight. Now, I've caught many a big beef steer with a rope, and good big, heavy horses, too, but I never yet had anything hang as heavy on a rope as that bear did.

"Hank Kusker had bad luck with his grizzly. He roped it a little too good. Now Hank was noted for his expert roping and riding. He won the first prize in the contest at Minneapolis. I don't believe there was a horse on the face of the earth that could buck him off—nor any other animal, for that matter. Time and ag'in I've seen him ride wild steers, and wild mules and horses, just for devilment; and he was one of the best-hearted boys in the world, too.

"Well, the first time Hank throwed at his bear, he caught him fair around the neck; but he ran his horse on the rope too hard, and gave the bear such an awful jerk that he just about broke his neck. The bear was alive, but it couldn't fight; so Hank got off his horse, and left the bear a-draggin' at the end of the rope, and his horse a-backin' away from him for dear life, scared 'most to death.

"I told Hank I was agoin' to take my bear to the ranch; but that was only a bluff. The ranch was fifteen miles off, and the bear was getting worse to handle all the time.

"Whenever the bear could get a chance, he'd make a run for my horse, and then I'd have to make a mighty quick run off sideways from the direction he was a-comin' and give him a jerk that would tame him down some. But my horse began to get pretty tired of being jerked and jumped about so much, besides havin' had to make a pretty good run to catch the bears.

"Hank come a-walkin' up, and said, disappointed-like:

" 'I can't get no fun out o' my bear. The beggar's done fer, I believe.'

"I says: 'Well, s'pose ye take this one, and josh *him* a spell.'

"Hank says, 'Lookahere, Jim, I've rode 'most every kind of animal but a grizzly bear, and I'm agoin' to ride this one, or bust!'

" 'Well, then, pile onto him!' I says.

"I started up my horse, and began to drag the bear along, him a-bawlin' and a-cussin', and pullin' back most contrary, all the time. Hank slipped up behind the grizzly, jumped astraddle of his back, and socked his spurs into him. Well, sir, I just wish both of ye could 'a' seen that bear! He gave a big growl—just like swearin'—reached up first one hind foot and then the other, and 'Rip! Rip!'—he caught Hank on both legs, high up. He tore off his pants and his drawers, and nearly tore his legs open into the bargain.

" 'Oh, hell!' says Hank, and you ought to have seen him pile off that bear, a-cussin' and swearin'; and quick as lightnin' the bear whirled around and took after him!

"Just for fun, I gave up a little slack; and talk about Hank's horse a-runnin' away from bears—why, he couldn't hold a candle to Hank! And the condition that Hank was in was just shockin'—no hat, no clothes from the waist down but a pair of boots and flutterin' rags. And the blood ran down his legs, too, in streaks, where the bear's claws had cut his hide open.

"Well, after that, we concluded we'd had about enough fun for one day with that bear, and we'd make a finish. Not havin' guns or knives, there was only one thing to do.

Hank got on his horse and roped the bear around the hind legs, and we stretched him out between our horses and choked him to death.

"By that time, Hank's bear was dead, too, and after some pretty hard work with that little bit of a knife, we got both of 'em bled and partly skinned. Then I said to Hank:

" 'You better go back after the horses; and ketch old Judge and bring him back, too, so that we can get a butcher-knife and skin these bears right. We must take some meat to the ranch and all have grizzly-bear steak for supper to-night.'

"Hank went all right; but he said he had to go back about eight miles before he caught that bunch of horses. When he finally got back with the bunch, he caught old Judge; but he couldn't get him within a quarter of a mile of them bears until we had blindfolded him.

"Well, we sailed in to skin the bears, and was agoin' for 'em like a couple of c'yotes at a steer. We had our heads down, and our two saddle-horses were standin' off to windward, with their heads down, too, tired and sleepy-like, from the work they had done.

"All of a sudden, one of the saddle-horses jumped and gave a big snort, as if he had seen something.

"Well, sir, that snort just scared both of us plumb silly. We never even took time to look about and see for sure whether the horse had seen anything. Hank says: 'Good Lord, Jim!' dropped his knife and ran for his horse.

"Now, you know that was enough for me—and I got to my horse first. Of course we were covered with blood, and smelled purty strong of bear; and we made such a lunge for our horses that we scared them purty near into

fits. We grabbed 'em, but they jerked us around over the prairie until they just wore us out. At last, though, we managed to get onto them, but even when we did get into our saddles, we had to ride like Comanches in order to stay on; for both horses bucked as hard as they ever did in their whole lives. But my horse couldn't 'a' got me off then, not if he had jumped as high as the moon; for I expected every minute to feel that old bear's claws into me. She might just as well 'a' had holt of me, for I wouldn't 'a' been any worse scared if she had.

"When our cayuses got through buckin' and found they couldn't unload us, they went to runnin', and we let 'em run for about half a mile. Finally we stopped and looked around to see what had scared us; and Hank says:

" 'What'n blazes was it, anyhow?'

"I says: '*I* don't know. I s'posed it was the old bear comin' over the hill. Didn't you see anything?'

"Hank says: 'No; I didn't *see* anything; but, gee! I could *feel* that old bear a-tearin' the rest o' my clothes off!' But I tell you, she wouldn't 'a' had a very big job to tear off the rest of the clothes Hank had on when that young grizzly got through with him. Then I says:

" 'Well, Hank, *we're* all right—to run off and leave pore old Judge a-standin' there, blindfolded!'

" 'Aw,' Hank says, reckless-like, 'let old Judge take care of himself whenever we're a-fightin' bears.'

"Now, I don't suppose that old she bear was within ten miles of us at the time that horse snorted, or afterwards, either. But, ye see, we were both afoot. That's what scared us so plumb silly!

"Well, finally we went back, and finished up skinnin' the bears. Then we led old Judge up, and after he'd

dragged us around awhile we put the hides on him, and some meat, took the blinds off him and let him go to the bunch.

"When the horses saw that pack-horse a-comin', and got the smell of the bear hides and the meat, now I tell you they lit out; and Judge ran after them, as close up as he could get. We got them headed for the ranch—good fifteen miles off—and just let 'em go. We couldn't 'a' done anything else; and we just followed 'em, as close as we could.

"When the boys at the ranch saw the bunch a-comin' down the trail, one of the fellers ran out to the corral and opened the gate, and the balance rode out on the sides, to head the horses in. Some feller yelled:

" 'Wait till Judge gets in,' and they waited.

"He was about three hundred yards behind, comin' like a covered wagon—bear-skins 'most adraggin' the ground, skins and meat goin' 'Ker-flop! ker-flop!' and the horse white with lather.

"The other horses ran into the corral and were all right —till old Judge ran in amongst 'em. If he had been a big grizzly bear himself, it wouldn't 'a' been any different to them. They were scared plumb wild. And stampeded! Why, nobody ever saw another sight like it, in *any* corral! Some jumped over the fence, and some jumped up onto it and *fell* over on the other side. Nearly all of 'em got out; and once out, they just naturally quit the country. Some of 'em were found afterwards on the head of the Porcupine, more than a hundred miles to the south-west. Some were heard of about six weeks afterward in Washington Territory, where they were raised; and some of 'em never were heard of.

"Pore old Judge died that night. I s'pose he got overheated in the long, hard run to the ranch, under that pack. We were all mighty sorry that he died, and the other boys blamed me and Hank for a while. But, thunder! We never dreamed the old feller would just naturally kill himself a-runnin' when there were no spurs on him. He must 'a' been scared plumb up by them bear-skins.

"That little pearl-handled knife? Why, Hank begged it away from me. He took the blade out, and had it set in a gold brooch and gave it to his girl in Oregon, where he used to live."

VII

HUNTING THE CAVE-BIRD OF TRINIDAD

(1900)

HIDING far away in the gloomy caverns that open seaward in the rugged northern face of Trinidad are some of the strangest birds that ever fell before gun of mine. Although many a day has passed since I made their acquaintance, they still harbor and breed in that rock-walled cave into whose black entrance the blue waves are now dashing and booming, just as they did on a never-to-be-forgotten day that once came to me.

The cave-bird of Trinidad is a bundle of oddities. Although it is one of the goatsuckers, and therefore should eat insects, it lives exclusively on fruit. It has a bill like a hawk, a hip-roof tail, and long mouth bristles that are purely ornamental. It lives and breeds in rocky caves, without knowing enough to fly out when its home is invaded. In size it is about as large as a common pigeon, except that its wings and tail are very long in proportion to the size of the body. The adult bird measures fifteen to seventeen inches in total length, and its spread of wing is from thirty-five to thirty-eight inches. Its general color is reddish chestnut-brown, marked with numerous fan-shaped white spots. The young birds develop on the abdominal region a thick layer of fat, which, when fried out, yields a fine, clear oil of good flavor, so much prized by the negroes and the Indians of northern Venezuela that annually the caves are raided and great numbers of the young are taken.

To ornithologists the cave-bird is known as *Steatornis steatornis,* and, by virtue of its queer form and habits, it is now assigned a genus by itself. It is most commonly known to the zoological world as the "Guacharo bird," but in Trinidad it is called the "Cave-bird," "Oil-bird," or "Jabrutin." Although its geographical area is gradually widening, it is still very much circumscribed, and is confined to the northern part of South America, from Trinidad to Peru. The caves in which it is found are very few in number.

Up to the year 1876, museum specimens of this bird were few and far between. In the United States, so far as could be ascertained, not even one existed. The rarity of this species in ornithological collections was due to its rarity in a state of nature, and the inaccessible character of the caverns it selects as its home. Being strictly nocturnal in its habits, much more so than other goatsuckers, it is never taken outside of its cave dwellings.

The Island of Trinidad forms the hook on the end of the chain of Windward Islands that stretches southward from the Leeward group toward the extreme northeastern point of Venezuela. The point of the hook consists of a chain of eight or ten high rocky islets covered with luxuriant tropical vegetation, that seem ever trying to reach across the narrow strait of the Dragon's Mouth, and join Trinidad to the mainland.

It was at Port of Spain, the capital city of Trinidad, that we learned definitely of the existence of several caves on those small islands, one of which was said to contain "cave-birds." Further inquiry seemed to establish the fact that the species thus designated was none other than the object of our quest. Without loss of time we hired a

boat, sailed up to Monos Island, landed at a little whaling settlement we found there, and hung our hammocks for a stay of some days. Our host was Mr. David Basanta, who from first to last was in every sense our guide, philosopher and friend.

The prospect of securing some guacharos was declared to be by no means flattering, nor the time particularly auspicious. The cave in which the birds live is cut low down in the foot of the rocky precipice which forms the north wall of Huevos Island, and runs down sheer into sixty fathoms of water. The water is blue and deep, and it is the beating billows of the Atlantic itself that dash against those rocky walls. The guacharo cave can be entered from the sea only, by boat, and owing to its exposed situation, it is at all times dangerous to enter or to leave. When the sea is rough the cave is inaccessible.

Mr. Basanta regarded the object of our visit with noticeable disfavor, because, being his guests, he felt in a measure responsible.

"Can ye swim?" he asked, after pondering deeply.

"Oh, yes."

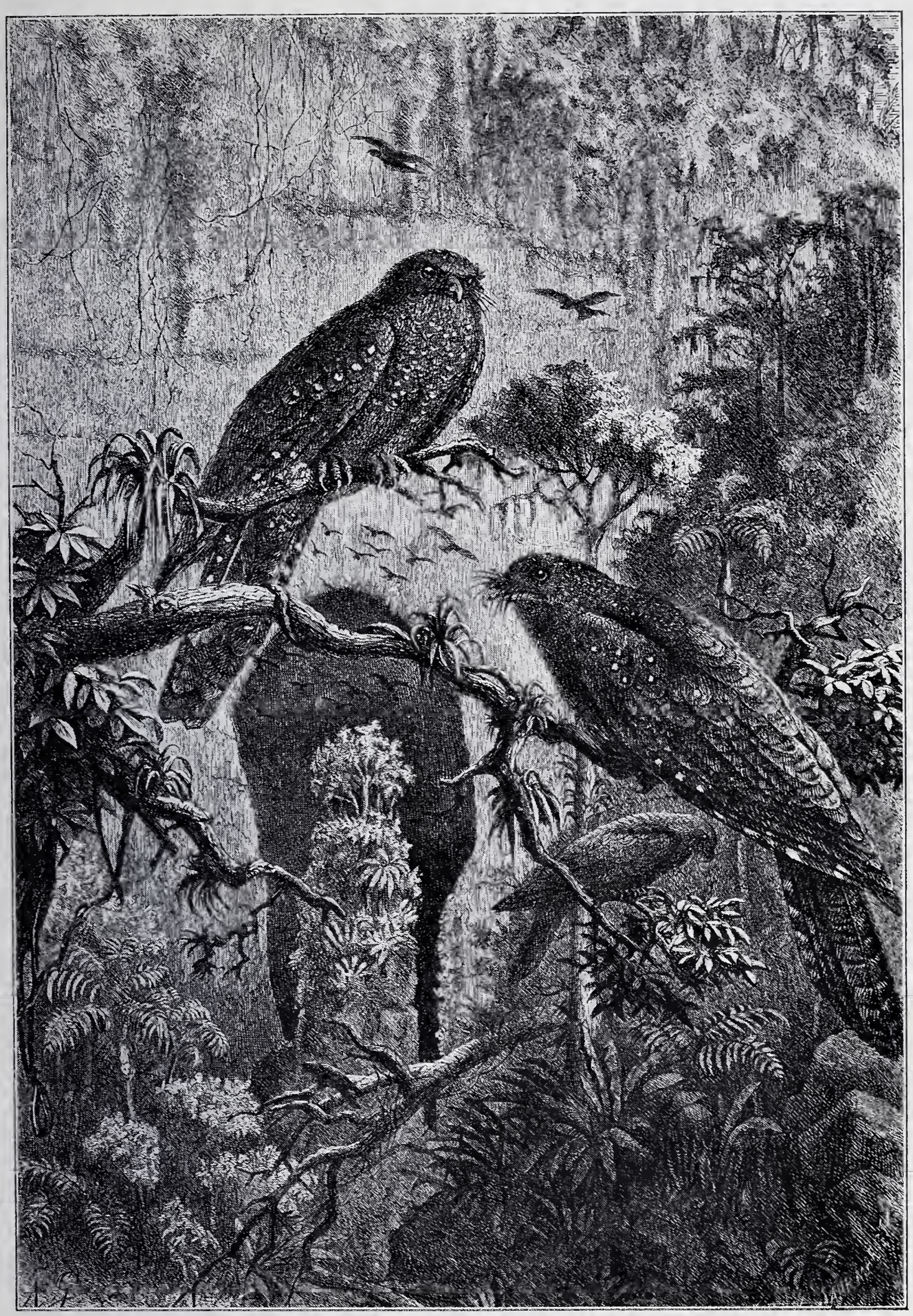
"Both of ye?"

"Yes, Chet swims fine; I swim well enough."

"But have we got to swim for them?" asked practical Chet.

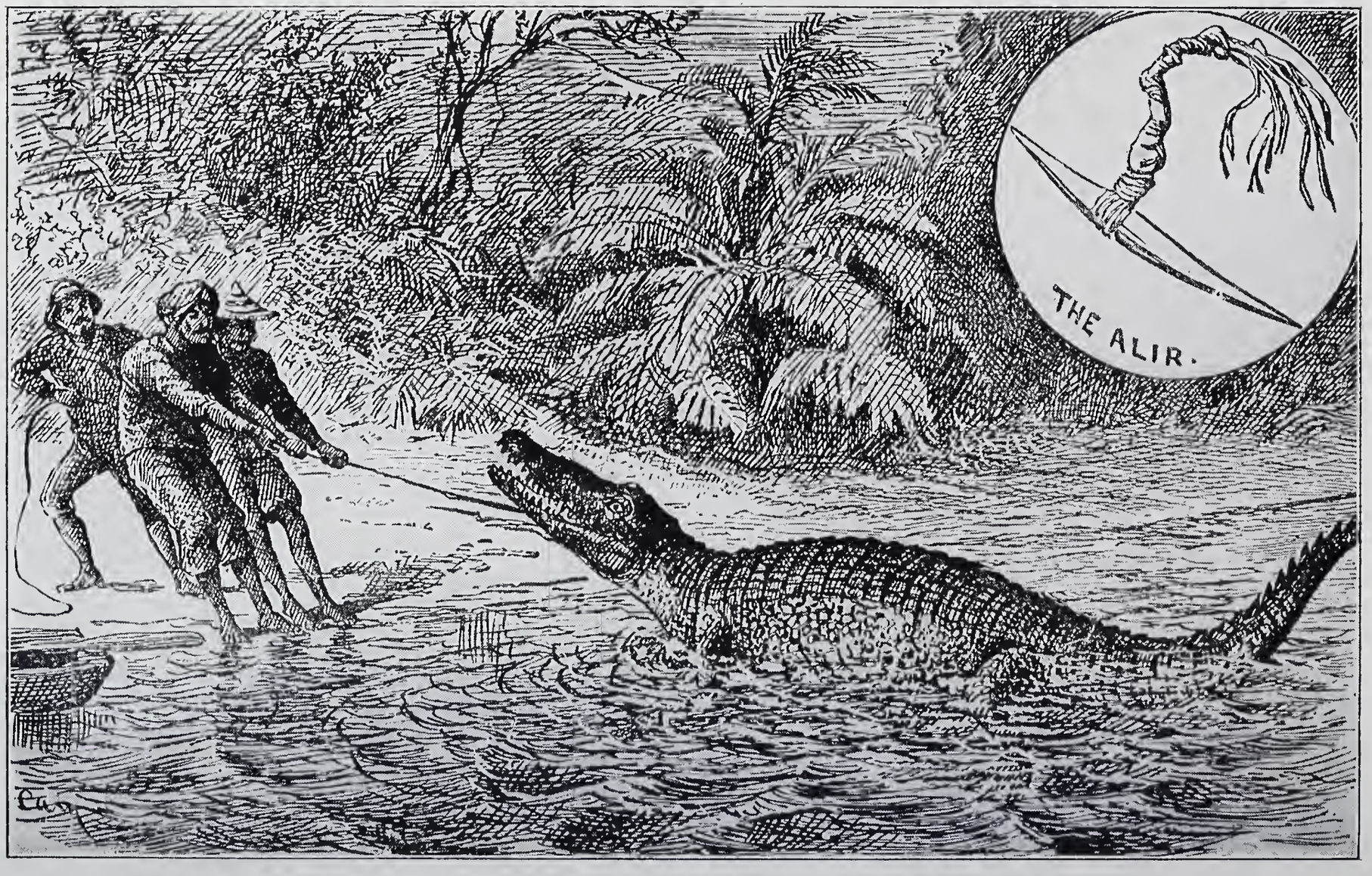
"Mayhap ye might need to swim for yourselves," answered Basanta; and then to steady our nerves he continued, reminiscently:

"Four or five years ago, a party of colored fellows went to the cave to get a lot of young birds, for their oil. They didn't come back, and when their friends finally went in search of them, a smashed boat and one dead body



From "The Royal Natural History," courtesy of Frederick Warne & Co.

The Guacharo or "Cave Bird," of Trinidad.



Catching a Crocodile with Hook and Line.

tossing against the rocks was all that was left of a party of four."

"Good gosh!" says Chet, very low.

Purely as a friendly act, and in scorn of the money we were able to offer, Mr. Basanta consented to take us to the cave, and enter if possible.

"But everything depends upon the weather," he said impressively. And in the smallest morning hour, when human vitality is at low tide, I lay wide-awake in my hammock. I listened to the waves tumbling on the beach within forty feet of the house, and had the horrors. I saw the broken boat, and the dead man pounding against the rocks, as clearly as in a photograph.

Early in the morning (of the last day of February) we set out in a small but staunch whale-boat, manned by two athletic negroes, and steered by Mr. Basanta. We pulled westward along the south shore of Monos Island, went out with the tide through the Boca Huevos, or "Egg Mouth," and took our course on the open sea along the perpendicular rocky cliffs of Huevos Island.

Half an hour's pulling on blue water brought us to where a bite had been taken out of the cliff, and left a tiny bay, half circled with rugged walls of limestone rock that rose a hundred feet sheer above the waves that boomed against their base. Basanta looked north and east, measured the waves with a practised eye, and finally said:

"We'll try it; but if the wind freshens while we're inside, we'll be in a fix."

Entering this little bay, the oarsmen stripped to the waist, seeing which, Chet and I threw off our cartridge bags, and made ready to swim if necessary.

Along the foot of the rocky wall were masses of

rugged rock, which had fallen from above and lay there half submerged, with the waves rolling over them, hidden one moment and exposed the next. But where is the cave? There was not a sign of it in sight, and Basanta headed our boat straight to destruction on the rocks.

Presently, as the boat swept in past a huge, brown rock, larger than any of the rest, we saw the cave's mouth yawning before us, black and grim, like the entrance to an inferno. It was about six feet high by fourteen wide, while into it the big waves rolled continuously, much farther than we could see. An entering wave would half fill the entire mouth of the cavern, and the next instant leave bare a number of jagged rocks in the passage, on which our boat would be split into kindling-wood if we failed to pass over them all at precisely the right second of time. How mortal man could get into that hole-in-the-wall, and get out again with a whole boat, was more than the two landsmen could see.

But we had come there to go in, or go to the bottom. Mr. Basanta gave sharp orders, and many of them, which the oarsmen obeyed to the letter. The negroes drew in their oars for nearly half their length. The boat was put in position in front of the entrance, between two half-sunken rocks, and held there for a fraction of a minute, like a hound in leash.

Presently a huge wave came rolling in from seaward. As it lifted the stern of our boat, the steersman yelled, "Now then!" The oarsmen gave an answering yell, tugged frantically at their shortened oars, and in we dashed. The big roller carried us safely over the sunken rocks, but it also came very near banging us against the rocky roof of the passage. As we were lifted and carried forward by

one swell after another, we crouched low, and but for the skill of those handling the boat, we would certainly have dashed against one side or the other. Despite the chances against us, all went well. After traversing a passage about sixty feet long, our keel grated on a sloping bank of white pebbles, on which we quickly and thankfully landed, and drew the boat up high and dry.

The guacharo birds were there. The moment we entered the cave hundreds of them rose from their rocky perches on the walls and circled about the rocky dome, filling the cave with a storm of harsh, rasping cries. A thin streak of reflected light shone in the passage, but everything else was Egyptian darkness. Turning our faces inward, we groped forward, staring resolutely into the darkness, so that we might accustom our eyes to it as quickly as possible.

"Be as quick as ye can, men," entreated Mr. Basanta. "In five minutes the sea may rise, and make us fly for our lives."

We stood in an immense rocky dome, about seventy feet in height, and a hundred and fifty wide at its widest part. Its floor was covered with a bed of dry and spongy brown guano of a pungent odor, strongly suggestive of the Peruvian product. No fewer than two hundred guacharo birds were wheeling and circling in the top of the cavern close to the roof, or flitting noiselessly, like huge brown bats, within ten feet of our heads. Although they were thoroughly alarmed, not one of the foolish creatures flew out by the passage, whither all might have escaped in two minutes, had they only known it. The cave literally swarmed with them, and their peculiar grating cries blended into a perfect tempest overhead. Outside, the

surf boomed up against the rocks, filling the cave with reverberations. Inside, the swells came rolling through the passage and swashing loudly up the pebbly beach, while to all this the guacharo birds joined their ceaseless din, drowning our own voices so completely we could be heard only by shouting in each other's ears.

At first the darkness was so complete we were utterly unable to shoot any of the birds. In sheer helplessness we began to search for nests and eggs to occupy the time while our eyes were becoming accustomed to the darkness.

We soon found nests aplenty, on a huge mass of fallen rock, which on one side of the cavern formed a series of ledges thirty feet high. On climbing up we found the rocks covered to a depth of several inches with loose guano, on which the nests lay like so many brown cheeses, from seven to nine inches in diameter, and three to six inches high. They are composed chiefly of undigested fruit skins and seeds. We found between seventy and eighty nests, and the number of eggs in each varied from one to four.

By the time we had collected a satisfactory lot of nests and eggs, our eyes had so adjusted themselves to the place that we could dimly see the birds that still circled about in the top of the dome. With the first shot, the cavern roared like a peal of thunder, but no bird fell. It was like shooting at midnight in a forest. Many a shot we fired in vain, and friend Basanta shouted out his fear that the heavy and continued reverberations would bring down rocks upon us.

At last we found a way to bring down birds. The reflected light from the water in the passage threw a broad though feeble beam across the cave, and against the opposite wall, well up. We found that as the birds flew across

this beam, we could see them well enough to aim, and our guns began to bring them down.

The next moment, so it seemed to us, Basanta came running up from the water's edge, and shouted in our ears:

"The sea is rising, men! We must get out of this, quick, or we'll get caught."

We stood not upon the order of our going. Dead birds, nests and eggs and guns were hurriedly deposited in the boat, and three of us took our places. The negroes floated the boat, and waded beside it until Basanta shouted "Now then!" when they leaped in and pulled hard for daylight.

Half-way out a big roller met us, lifted the boat with a vicious jerk, banged its bow against the rocky roof of the tunnel, and filled it nearly half-full of water before it passed on. Another like it would surely swamp us. No wonder the negroes pulled hard and quick, and yelled.

As we cleared the mouth of the passage, our rudder gently kissed the outer edge of a murderous-looking rock we had safely passed over, but which had been instantly laid bare by the on-rushing wave. The water that raced and foamed off its ragged top fairly hissed with baffled rage; and on both sides of us, less than an oar's length away, lay other rocks like that.

When we reached deep water we lay on our oars, baled out the water, and counted our trophies. We had eighteen adult birds, three young ones, three nests and twenty eggs.

Both before and since that time, I have been boating in several bad places, but never in another which was so thoroughly dangerous as that. It was a great day; and in whale-boat management, Basanta and his two boatmen were genuine artists.

VIII

THE LURE OF CROCODILE-HUNTING

(1921)

In the golden days when I was a buoyant and fresh young man, suddenly and unexpectedly to myself, I leaped into the position of Chief Crocodile Killer to the World at large. That was various years ago, and if any other young man has surpassed my list of species, I will, upon proof of his claims, be pleased to hand over to him the above-mentioned title, almost as good as new.

Because they were big, ugly, dangerous and difficult to accomplish in large dimensions; and because of their romantic jungle atmosphere, crocodile-hunting always fascinated me. I did all my hunting with "specimens" as the excuse, which was an advantage that few other crocodile-hunters have enjoyed. Each well-made skin and skeleton was a candidate for museum honors. There were years when I lay awake nights, and had countless nightmares, in terms of cubic feet of "specimens"; and in those days every 12-foot crock was an achievement worthy of respect.

My education as a crocodile-hunter was not achieved. It was thrust upon me, in 1875, when as a beardless and callow youth I determined to set myself up in business as a "collecting naturalist." My first offense was a trip to Cuba, and the Isle of Pines. In the land-locked heart of that balmy isle, at a forest hut called San Pedro, most unexpectedly and thrillingly I saw and shot my first crocodile. It was only six feet long, and its home ranch was

a brook only six feet wide, but it was a real flesh-and-blood crock. It represented *Crocodilus rhombifer,* a species that is quite small for its age.

But mark well the next step in my wild evolution as a hunter and collector of crocodiles.

My guiding star sent me from the Isle of Pines across to Key West, up to Biscayne Bay, to Miami of three (3) houses, and on up to Arch Creek, which flows from the Everglades into the head of the Bay. Chester Jackson and I camped upon the natural stone bridge that firmly spans Arch Creek, and which, if you look out of the car window, you can see from the train at Arch Creek station, about twelve miles north of the classic city of Miami.

Then and there we heard of a strange-looking but very "big old 'gator" who lived in the deepest part of the creek, a mile or so below the Arch. In a few hours we got sight of him, out on the bank in a saw-grass wallow. He was a monster for size—a perfect whale of a saurian, grey in color—and by all the powers, *he was a genuine* CROCODILE!

This enormous discovery—of a *true crocodile, in Florida*—nearly bowled me over in a fit. To kill him and take his skin was like attacking a full-grown dragon. Even to-day, as I look at the absurd little 40-calibre, single-shot, black-powder Maynard rifle that hangs in my office, and think of that 14-foot crocodile, I think of myself: "How on earth did those two young tenderfoot 'tourists' *ever* do it?"

The wary old crock would not stand being approached by boat, even by a boat all trimmed up with green boughs to register a harmless elysian bower, or a floating tree-top. Not he! A quarter of a mile away he launched his great hulk, and plunged to depths profound.

The next day we rose before the old crock, and I took an advanced outpost position in a bunch of mangrove roots opposite his basking-place. Chester kindly took the boat around the first bend below, and waited. Old Crock finally came to the surface; but he smelled a rat, and refused to come out. He just floated and swam on the top of his 14 feet of water, and elected to stand pat.

With the wild impatience of inconsiderate youth I couldn't restrain myself for unknown hours, as according to Hoyle I should have done. Some devilish little imp kept whispering in my ear: "Shoot him in the eye! Shoot him in the *eye!*" and against all precedents and sense, mechanically I obeyed.

My vicious little bullet put out his optic, knocked a piece out of his bony eyebrow, and went whizzing off over the saw-grass toward Miami.

The big crock was knocked crazy. First, six feet of an enormous tail shot up out of the water, then disappeared, to be followed by six feet of dragon head and shoulders. With the boat we wildly followed him up, and landed seven bullets in the back of his neck. Finally we chased him into shallow water, where he grounded, and obligingly died of old age!

With half a foot of his tail gone he measured 14 feet 2 inches, and his bulk was enormous. We hitched our boat to him, and foolishly tried to tow him, by his own floatage; but pshaw! We could as easily have towed a two-ton safe. He was indeed a true crocodile, and the first one ever taken on United States soil. No; we did not spoil the skin, nor lose it overboard. We brought it in under our own steam, and the stuffed giant has reposed

on a polished pedestal in the United States National Museum ever since 1876.

Since that lucky episode, in which the Florida Crocodile was definitely put upon the map of the world, "Alligator Joe" and his heirs and assigns have done a roaring trade in lassoing crocodiles alive for the terrorization of northern tourists, at $50 per thrill. The Palm Beach crocodile-'gator farm has become a permanent institution.

After a lapse of a century of white men in the home of the Florida crocodile, it was discovered that that reptile has the strange habit of digging subterranean burrows in the sandy banks of creeks and rivers, and living in them—a trick that no other crocodilian species of my acquaintance ever thought of.

My lucky strike in Florida immediately precipitated other troubles with crocodiles in other lands. The next important mix-up occurred in Venezuela, on the Orinoco, in the dry season, close below Ciudad Bolivar. By good rights I should have been swallowed alive, or carried into the stream and drowned; and would have been but for the kind Providence that watches over the destinies of fools and drunken men.

Again Chester E. Jackson and I were hunting together, and having ambushed a very ugly and vicious sharp-nosed crocodile 12 feet long, we fired together. Our bullets landed only two inches apart. The old crock lay still on the sand and sprung his jaws wide apart, thereby registering a mortal hit.

Foolishly leaving my rifle lying where I fired it, I sprinted at top speed across a hundred yards of clean sand, to grab the crock by the tail before he could drag himself into the water and get lost.

As I stooped and seized the end of his tail, a mighty sweep of that member threw me aside, and in just two ticks of the clock that awful brute whirled as if on a pivot, and presented his long snout and four long rows of teeth within a handbreadth of my face. He opened his jaws about three feet wide (so it seemed to me) and gave a guttural snarl of rage that scared me horribly.

Chester yelled, *"Look out!"* and ran forward.

Like a frightened goat I sprang to the tail end of the horrid reptile, and again he whirled and faced me. Then he snapped his jaws together with a loud "clank," so near me I could have touched him; and such awful eyes I never saw before, or since.

By the time we had executed that semicircle for a third time, Chester rushed up with his loaded rifle, put a shot into my enemy's neck, and finished his career.

Now, just why that reptile did not take to the water and plunge out of sight, as he was due to do, I do not know; and just why he did not make one good lunge forward for me, and grab me in his jaws, I do not know. Perhaps it was because he knew that the Museum of Comparative Zoology needed his skin, and would immortalize him; but even if that were true he had no right to scare me to death, as he did.

The Orinoco crocodile (*Crocodilus intermedius*) has a very narrow head, and as heads run he approaches the panhandle Indian gavial, our next source of trouble.

Just one year after that circus with the Orinoco crocodile, we were up against the gavial of Northern India, in the River Jumna, the largest tributary of the Ganges. (And what a thrill it sends through my blood to write that sentence now!) My whole "reputation" as a budding

zoologist rested on my skill, or lack of skill, as a rifleman and hunter. If I could not kill gavials across the Jumna, "science" was not my portion!

But that absurd little Maynard rifle saved my reputation. I lived in a flat-boat, with six Hindoo rivermen to pull it, or row it, and converted it into a zoological house-boat. And oh, man! what a lark that was! The glamor of its romance will not fade out by a single ray until I do.

Now, those gavials made me a world of trouble. Conditions for shooting them *and getting them* were frightfully hard. I had to develop a line of strategy that would have done credit to a general in uniform. All the big ones had to be killed by stationing men on their side, in ambush, and then shooting them at long range across the river. Let him who thinks it easy to bag a 12-foot gavial across a deep river at 200 or 250 yards, good measure, with such a rifle and ammunition as I used in those benighted black-powder days, just try it once! I crawled over hot sand on my stomach until I began to develop abdominal scales, and ribs like a crocodile. I thought about trajectory, and windage, and light-halation, until it hurt my head.

Fortunately for me, I knew enough of the rudiments of crocodilian anatomy to realize that under the handicaps that covered my humble efforts, there was only one shot that instantly would so react that my quarry could be secured. That was to hit the vertebral column in the neck, in front of the armored and protected body. At 250 yards the neuchal plates on the top of the neck did not bother me. It was like shooting to hit a man's naked forearm, or get nothing; and at 200 yards the mark was nothing but a dim, gray horizontal line. If we hit,

the reptile's jaws would fly wide open, quite as if you had struck a spring lid-opener, and the gavial would lie still. Then a hat waved to the watching men would send them scampering over the sand to seize the gavial by the tail, and keep it from getting into the water. If the reptile was not killed by the first bullet, there would be activities later on, involving a struggle for supremacy, pending the slow arrival of the sahib with the gun.

Our greatest adventure ought not be described, because only hits are history, and misses (usually) are mystery.

It concerned a gavial so big and so heavy that my light ordnance was utterly unable to conquer it. It was like attacking a super-dreadnaught with an eight-inch gun.

It is a fact that the male Indian gavial sometimes attains a length over all of 20 feet and 6 inches. I have seen a museum specimen of that size. In the theatre of my brazen operations there was one old he gavial so huge that he made 12-foot specimens seem small. Naturally, I yearned for him, and planned his downfall. In my mind's eye I saw him shot, skinned, mounted and displayed in the "Agassiz Museum" with a large label reading: "COLLECTED BY——."

That was a whale of a gavial. He had on his snout the hall-mark of great size and age—a big, round boss of bone as large as a big apple. Only the giants have that.

The gavial that we sought frequented no land save a tiny sandy islet in the middle of the river. When he slowly and ponderously hauled himself out thereon, he looked for size like the Great Dragon of Saint John's vision. The odds were against us, but we thought that by sharp work we might win through.

To reach him at the crucial moment, my Hindoo boatmen would have to swim to him! In the beginning of our work on the Jumna, those men were afraid to seize any wounded gavial by the tail; but I educated them, and taught them to be good sports. I solemnly pledged myself to pay to the family of any one of them who might be badly injured, or lose his life in our operations, as large an indemnity as 150 rupees. With that insurance those once-timid fellows actually became brave, to the verge of recklessness.

When "The Day" came, and old Pfafner came out to meet his doom, five of my men were posted in a sand-pit, at the river's edge. With outrageous care and precision —and secret anxiety about my rifle's power—I fired for the neck vertebræ. The huge head flew open and the crocodile lay still.

"Forward! Go to him! Twenty rupees if you get him!"

The crouching men sprang from their lair, plunged headforemost into the river, dived as far as they could and swam for the islet. I fired again, to make my work more sure—and then the monster began slowly to move. Another shot—and he moved right on.

"Faster, men! He is getting away!"

The swimmers frantically surged forward, hand over hand, and the water boiled around them. Would they land in time?

A fourth shot went forward—just as the huge mass of moving crocodile reached the edge of the water.

"Hurry, men! Hurry!"

Some of them actually whined in their eagerness, just like dogs in leash.

But we lost.

With a margin of strength sufficient for his purpose, our intended prize slowly slid into the water, floated for one terrible ten seconds of despair and hope, then disappeared forever. The men landed where he had been, thirty fatal seconds too late. We never saw him again, and we never again saw another like him. In that twenty-mile section of the Jumna, he was in a class by himself.

Oh, yes! If I had had smokeless powder, and a cartridge six inches long, he would have waited for the men.

On the whole, that was the greatest failure, and the greatest uncompensated disappointment, of all my hunting experiences on four continents.

Contrary to the general terrorization of the world, very few species of crocodiles—which includes all the alligator and cayman species—are aggressively dangerous to man. The Mississippi alligator has not, so far as I am aware, any more than some very exceptional cases of man-eating authenticated against him. So far as I know, the South American crocodiles are not real "man-eaters," and neither is the mugger or the gavial of India. The aggressively dangerous species are the salt-water crocodile of the Malay Archipelago and the broad-headed crocodile of Angola, West Africa, and elsewhere in Africa. Of course, there are other species, harmless when fish and wild animals are abundant, that under stress of great hunger and desperation, will attack anything made of flesh and blood; but these exceptions are outside the general reckoning.

The salt-water crocodile of the Malay Peninsula, Borneo, and other islands of the Malay Archipelago, is a voracious man-eater, and a bold and aggressive hunter of

men. Its favorite method of hunting consists in haunting the bathing places of native villages, and seizing victims while they are bathing in the murky water, or dipping up water to carry away. Under such disadvantages it is an easy matter for a crocodile to drag a man into deep water, drown him quickly and afterward devour him at leisure. In my Bornean days the Sarawak Government paid a reward on crocodiles of fifty cents per foot, and in 1878 it paid for the killing of 266 head.

Once in my life I went fishing for crocodiles. It was on the west coast of the Malay Peninsula, at the little Malay village of Jerom. Opposite the mouth of the small river that there emptied into the sea, we often saw big salt-water crocodiles (*Crocodilus porosus*) swimming on the surface of the sea, two miles or more from the shore.

The method employed was wholly of Malay origin, and with some slight assistance from a friendly Chinese fisherman, it was put through by the Malays who were my backers while I was in their midst.

They made an "alir," or crocodile hook, out of a piece of tough wood an inch thick, sharpened at both ends, and tied in the middle at the end of a forty-foot rope of soft but tough green bark. The bait (a small skate) was firmly tied under the hook, and then one end of the hook was bent up beside the rope, and loosely tied there with a feeble string. The working hypothesis of that alir was that it was easy to swallow, but when the bark line was pulled vigorously the wooden anchor would turn crosswise in the crocodilian interior and hold fast.

To the farther end of the line a dry cocoanut in the husk was attached, as a float; and then the bait was cast upon the waters.

The next day we found the float agitated, and a living something at the other end of the line. When we hauled in, the ugliest old moss-back crocodile that I ever saw came to the surface to have a look. He snapped at the bark rope, but the soft stuff merely went between his teeth without being severed.

When we started to tow the old fossil down stream to the village, he began to fight; but presently he accepted the inevitable and came along rather comfortably until we neared the landing place and essayed to pull him ashore. Then he snapped desperately at the rope, rolled over and over, dove to the bottom, and stood on his head and on his tail by turns, until he was actually out upon the bank.

Then a rifle shot quickly and painlessly ended his muddy career.

He was precisely 12 feet in length, he weighed 415 pounds on the hoof, and his skin was so rough, so sodden with mud, so ugly and so impossible that I declined to accept it from him, and took only his skeleton. But that creek yielded nine other crocodiles of his kind that were more acceptable, and all of them were converted into "specimens."

In muddy tropical rivers and creeks, where there are no banks for hauling out, the alir and bark rope are much more effective than the rifle.

In Florida, where alligators once were common and cheap, the alligator-leather industry has left of our once-great stock of American alligators, practically nothing but fragments. Now the 'gator-leather hunter has come down to the humble basis of going at night with a jack-light and "shining" the eyes of baby 'gators, and committing a series of infanticides.

The largest wild alligator that I ever saw, alive or dead, was 16 feet and 1 inch long. It was taken in Louisiana, and shown by the museum of Tulane University at the Cotton Centennial Exposition in New Orleans.

The very last word on this scaly subject is that we have just received, from a Belgian man of science and economics, a questionnaire for the benefit of a plan that is being considered for the raising of crocodiles in the Belgian Congo for their skins, for commercial purposes; which is a long shot, with brush in the way.

IX

GAME-EATING ADVENTURES IN MANY LANDS

I WAS born an epicure, but I regret to say that I never graduated out of the amateur class. I lost faith in the intelligence of the human palate.

The hump-backed whale luncheon once given by Professor Henry Fairfield Osborn at the American Museum of Natural History, ably assisted by Mr. Roy Andrews, who then was a gentleman of pro-whale proclivities, is partly responsible for these reflections. On the one hand, we were shown, in our mind's eye, great quantities of fresh whale-meat going to waste. On the other hand, we beheld, as it were in our midst, a heterogeneous mass of alleged poor people—more or less deserving—who were going hungry for meat half the time and being soaked by the meat trust throughout the other half. With steaks and roasts, and even once-despised liver soaring up in the air between the contour lines of 35 and 50 cents per pound, Professor Osborn's try-out luncheon of whale-meat was very much in order.

The Victoria Whaling Company furnished the whale-steaks, and a cook of almost human intelligence did the rest. A full-length hump-backed whale, done in excellent papier-maché and paint, cavorted in mid-air above the table, lending verisimilitude. The curtain-raiser of minced whale was fair to middling, but I thought it was eaten through a sense of duty to the occasion rather than through real desire. The soup had a whale foundation, but its character was humanely neutral.

It was the planked whale-steak that represented the Real Thing. It was well done, as fine grained as most adult beef, tender, and not aggressively whalish in flavor. Served hot, as it was served to us, it was almost fine; and there was no flavor of any kind that was unpleasant, or that gave this guest an offish feeling. Large portions were consumed to starboard, port and dead ahead. It tasted like nothing else that I could remember save logger-head-turtle steaks; which to most people means nothing.

I sequestrated a small portion of that whale-steak in order to try it out cold. When eaten cold it has a pronounced gamey flavor that suggests smoked fish of a kind I never saw; and when cold it really needs a drop of hot sauce to boost it along.

Unquestionably, the lean meat of the whale-at-large may be put down as palatable, and reasonably eligible for a hungry proletariat. It was said that it can be laid down in New York from 12½ to 16 cents per pound; and there seems to be only one drawback to its use. As soon as people learn to like it, and go after it in continuous processions, up will go the price until it reaches the dizzy altitude of other good meats. Whale blubber, even when fried ever so crisp, is fishy, whale-oily, a delusion and a snare.

I can remember when calves' liver was given away by butchers! Then it was sold, first at 5 cents a pound, secondly at 10 cents; and now it is 35 cents or more.

Throughout the world, affluence breeds luxury; and as night follows day, luxury begets wastefulness. Until the war began to teach us food economy, it was only the very poor who sought or bought anything but "the best." At this moment I know a pin-headed young-man-with-a-

family on $100 per month who stoutly declares: "*I* can't eat any nut butter. *I* don't buy anything but the best creamery butter." But millions of wiser people, and some of them with larger incomes than his, are using nut butter at 32 cents because real butter is 60 cents, and half the time the stupid human palate does not recognize the difference except when it is labelled.

When I reflect upon the number of men whose dull palates I could have played upon, and count the very small number of my gastronomic experiments at their expense, I am surprised at my own forbearance. But on two occasions I was sorely tempted; and I fell.

At Keene, New Hampshire, along about 1885, a young Indian elephant got gay and killed his keeper; and the showmen in the case declared a war of extermination. The Keene military company was called out, a large circle was marked over the heart and lungs of the elephant, and a few hours before we reached Keene the deed was done. I attended in order to take off and prepare the skin of the animal for the United States National Museum.

The flesh was in perfect condition, and the elephant was not over twenty years old. Our chief assistant was a local butcher, and in an unguarded moment he strongly opined that the elephant-meat was not good food for white men. This rather annoyed me; and I invited the butcher to dine with us at our hotel.

At an opportune moment I cut from the shoulder some very beeflike steaks, and unostentatiously laid them aside. Gently I convoyed them into the hands of the cook at the hotel, with instructions to cook and serve them to us at dinner as beefsteak. The cook smiled gently; and it was so ordered. The butcher ate his helping of "steak" with-

out wincing, and just before he finished it, we told him.

He took it like a good sport, saying very cheerfully:

"Well, I'm convinced. I never noticed that it wasn't beef. I did notice that it was a little tough, but I thought to myself: 'That's nothing new for this hotel,' so I thought no more about it."

And truly, fresh elephant-meat of the right age and cut is every bit as good as beefsteak; I think that when it is young enough to be tender, and is cooked on steak lines, by its flavor or its texture alone no human palate can distinguish it from beef.

Once, however, I took a much greater hazard than that; and again it was a local butcher who was the party of the first part.

To Key West I went in the callow days of my youth, collecting fishes, turtles, invertebrates and other sea-things of odd sorts. For three weeks I lived in a family hotel, where all the guests sat at one large table. The head butcher of Key West, who furnished the meat for the house, also sat at the head of the table and did the serving.

In Key West the sea-turtle industry was then just entering its prime. Green turtle and logger-head turtle steaks were freely eaten, though not with the keen avidity that they were later on. When I talked about the virtue and value of turtle-steaks as human food, the butcher scoffed at them, and cast innuendoes upon them, many and strong. He said he just *couldn't* eat turtle-meat—"because of its rank and fishy taste."

Two days later I killed a huge logger-head, to procure its skeleton; and when I asked Mrs. Zewadski if she would not like a platter of turtle-steaks she smiled archly, and admitted that she would. I cut up that meat as Key

West beefsteak; it was cooked and served as beefsteak, and the butcher ate a portion with relish. More than that, he got half-way through his second piece before Mrs. Zewadski cruelly broke the news to him. But nobody laughed, and he wisely concluded not to get angry.

This reminds me of an experiment in the Rocky Mountains of Wyoming in the days of the real Wild West. On November 1, 1889, a tired, cold and hungry party of hunters rode up to Charlie Marston's comfortable cabin on the Shoshone River (née Stinking Water), which stood just one mile above the Forks. I can not prove the truth of this story, because that cabin is now under sixty feet of ice-cold water. It is the Shoshone Dam that is to blame. Even at that time, in our mind's eye, Horatio, we all foresaw the coming of a dam just like that. And it was then and there that those army men and I took the step that within eight months resulted in the changing of Stinking Water River into Shoshone River by the United States Board of Geographic Names.

Lieutenant C. S. Robertson (First Cavalry, Fort Custer) was the leader of the party, and Lieutenant H. A. Barber was second in command. May God give repose to both their brave and chivalrous souls. Win Brisbin, son of the C. O. at Fort Custer, was also among those present; and it was up to Charlie to rustle a supper for the heap-hungry four; because the wagons were miles back, and it was a cold night.

"Well, fellers," said Charlie, glowing with cheerfulness and hospitality, "I've got elk, deer *and* sheep-meat in my smoke-house! Which will ye have? Take your choice."

It was quickly decided that we would have both deer

and sheep, on a fifty-fifty basis. At once I put in a requisition that Charlie should fry the meat in camera, serve each kind separately, and let us see whether we could recognize each one by its flavor. The chair heard no objections, and it was so ordered.

The venison and mutton steaks were cut and fried similarly, but were served separately, and then each candidate was bidden to try both, and decide which was deer and which mutton.

As solemn as owls and about half as wise, we put our palates to the test; and each man did his level best to be right. Without hesitation we all decided that the left-hand dish carried sheep, and the right-hand one purveyed mutton. I was sure that I detected in the alleged mutton a faint woolly flavor.

"Well, fellers," said Charlie triumphantly, *"you're every one wrong!"*

I can still hear him say it; and I can still see how those four egos shrunk.

And this reminds me of another mountain episode in eating game. John M. Phillips, Charlie Smith and the Norboes put so many things over me in mountain-climbing in the Canadian Rockies that I must tell how I once scored over them on a mountain goat. Among the fool questions that I asked early was one regarding the edible qualities of white goat meat. I was told that goat meat was tough, "stringy," strongly tainted with wild onions so well beloved by Oreamnos, and therefore "no good."

When we skinned and cut up our first two goats—fine, fat billies, just in the prime of life and ready to burst with high-living—I couldn't see or smell anything wrong

with their meat. With rather risky obstinacy, I insisted that some of it be cooked, just as fairly and honorably as if it were sheep or venison.

Conscientiously, Guy Huddleston did his part, and with perfectly open minds we all partook of the result. It was dear old Mack Norboe who first exclaimed:

"Why! *This* goat-meat is *all right!* It don't taste of onions at all. It's just as good as deer; but it ain't *quite* as good as sheep."

That settled the question; because it was quite true; but it is much to the benefit of Oreamnos that the greatest possible number of persons should continue to believe, to the end of the chapter, that his meat is tough, stringy, onionated, and thoroughly "no good."

South America is a great place for gastronomic experiments. So far as I know, it is the hungriest country this side of the Arctic Circle. It contains quite a number of animals, but they are mostly small ones, and there is an awful lot of country around each one. I never knew what it was to be vastly and continuously hungry until I went to Venezuela.

In the delta of the Orinoco we lived for three weeks on cassava bread and the flesh of the capybara, with an occasional fish. We might have lived better had we not been such stupid fishermen. It was like one of the parties of Stanley's expedition, that almost starved in camp on the Congo, at Ipoto, with a river full of fish flowing at their feet.

The capybara is the largest of living rodents, with teeth like a beaver, and bristly gray hair like a pig. It is not only as large as a half-grown hog, but it looks like one—until you get to its teeth. It is a wonderful swimmer and

diver, and its flesh is excellent—when you are really hungry. Capybara stew is not so good as fried capybara, but in a South American forest you will welcome *Hydrochaerus* as a long-lost brother, either stewed or fried.

In that howling-monkey wilderness, we shot crested curassows out of the top of the tall timber; and after the demands of zoology had been fully satisfied, their plump breasts were very much to our taste. We ate all we could get, and hungrily wished for more.

At Barrancas, at the head of the Delta, owing to a two weeks' skip in the river steamer schedule, my friend Chester E. Jackson and I nominally starved to death. In the little hamlet, there was nothing edible but a very little cassava bread and a few beans. It was like robbing Petrograd to live upon that scanty store, so we rustled for wild food.

We caught a few armadillos; and believe me! minced armadillo on cassava bread is all right. We killed three or four very nice iguanas; and iguana hash, cooked well-done and brown, is excellent fare for marooned hombres. As to taste, it was nowise different from minced chicken; and anybody who can eat a cold-storage chicken (strongly flavored with unmentionable things) surely can eat iguana and like it.

The best thing that we had to eat at Barrancas was the tail of a half-grown Orinoco crocodile; and it was really fine. Even without hunger sauce, I give you my word it is as tender and tasty as the best roast veal. Out of a clean pond I shot a fine young *Crocodilus intermedius,* eight feet long, who stood the tuberculin test without batting an eye. In skinning the tail that great lump of clean white flesh appealed to me; and I said to Jackson:

"This crock has been living on good fish, and his meat is all right. Let's have some for dinner."

"You can have it, if you want it," said he, "but you needn't save any of it for me."

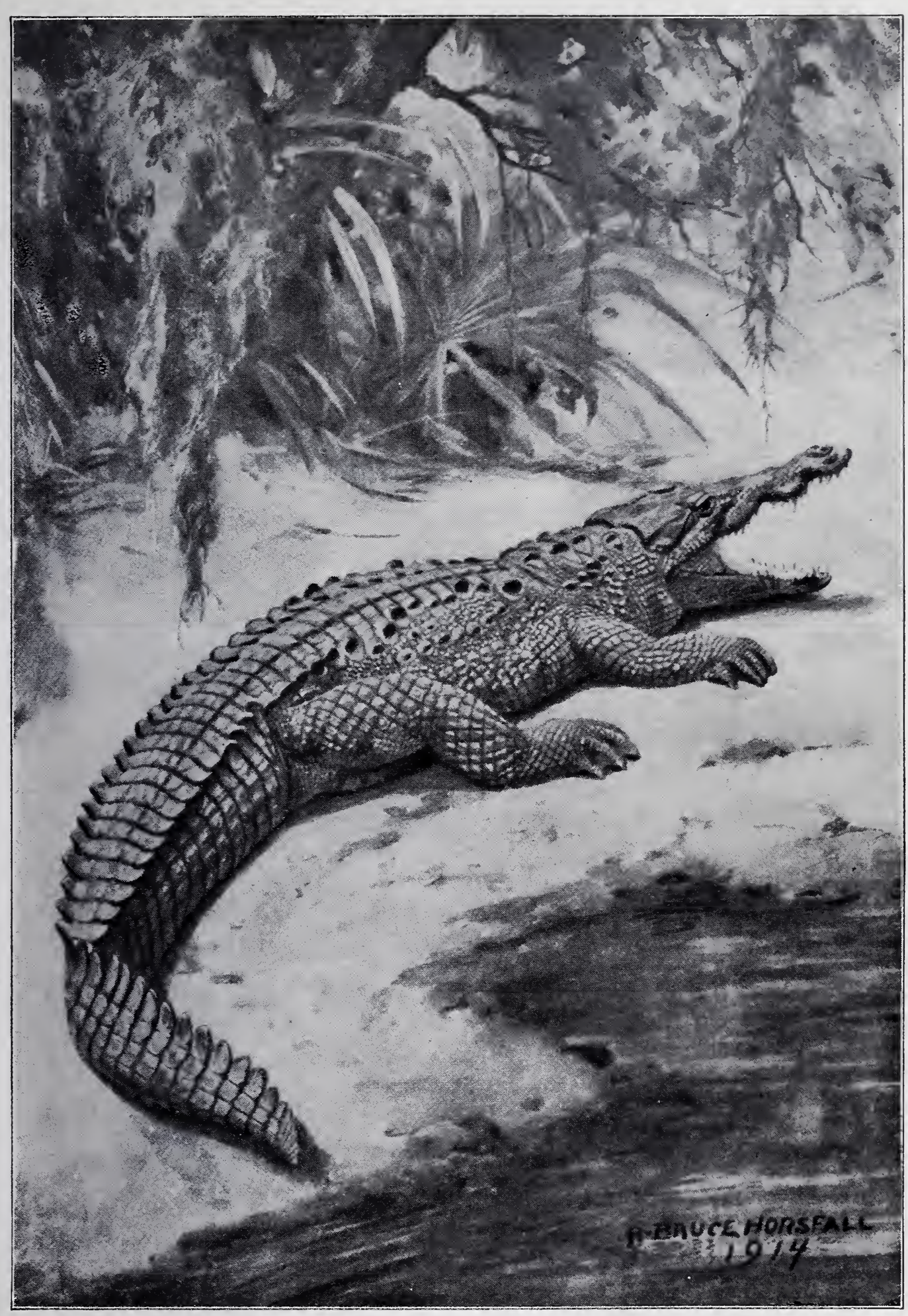
I saved a seven-pound roast and told the cook that it must be roasted, well-done, and seasoned as carefully as roast beef.

The cook was a man of discernment. That roast of crocodile was given a square deal; and it came upon the table turkey-brown, hot, and well-seasoned. It was as fine-grained, tender, white as turkey-breast and excellent. It tasted like roast veal; and it had no musky or gamey flavor whatever.

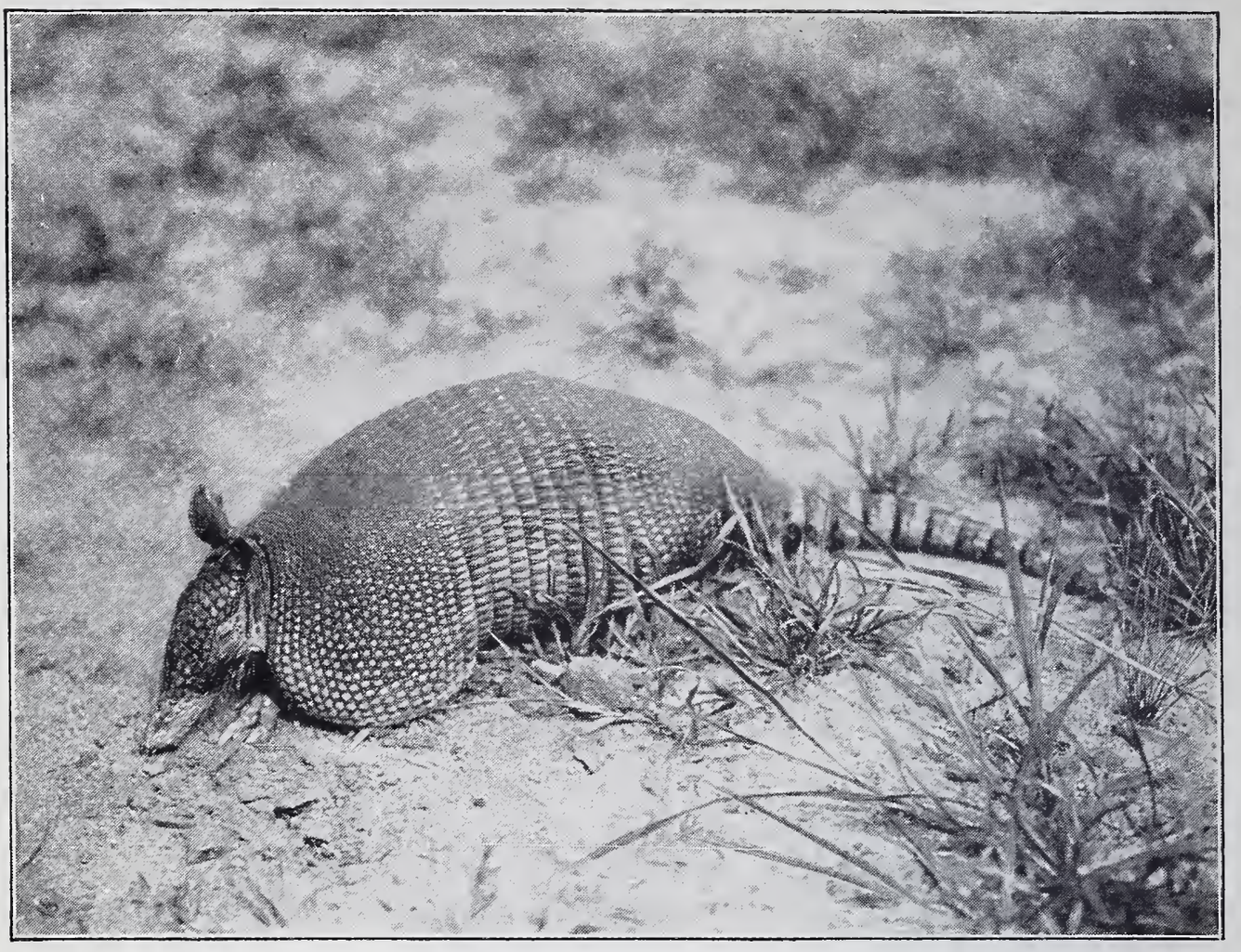
The only trouble about it was the quantity. There wasn't enough of it! With magnificent generosity I offered the first helping to Comrade Jackson, but heroically he declined it. By the time I had finished my first portion and was well started on the second, he repented; and thenceforward it was a neck-and-neck race to the finish.

Down in the Delta, the rarest thing we caught was a matamata, the ugliest and the most outlandish fresh-water turtle on this planet. All the fresh-water turtles of the Orinoco are eaten by the Venezuelans; and I give you my word that the huge fellows that come into Ciudad Bolivar from the Apure country, under the scientific trade-mark of *Podocnemys,* look mighty good to the eye of the collector, and their flavor on the table is perfectly satisfactory.

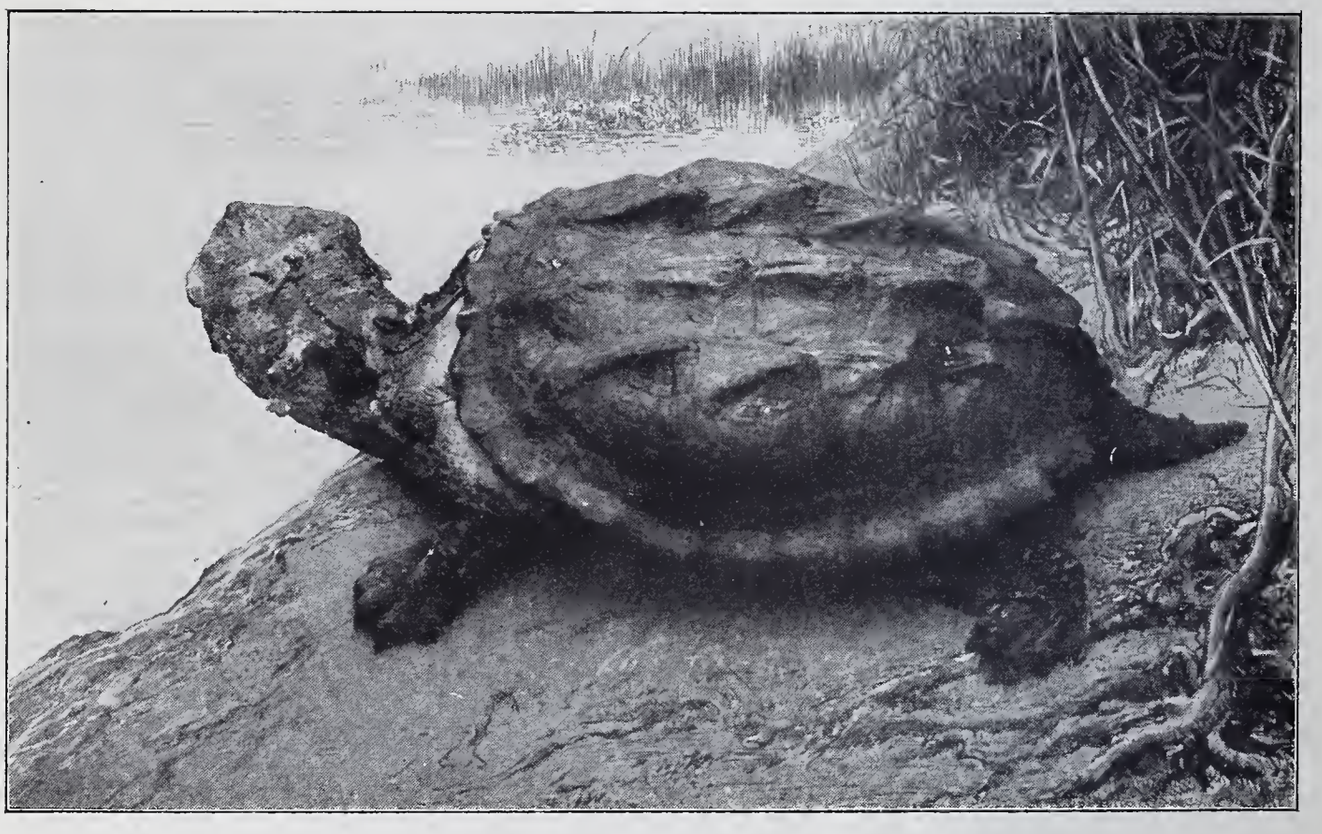
Our Venezuelan companions assured us that the matamata is "good to eat," and on that hint we acted. It gave me a queer feeling to eat a zoological rarity of those dimensions; but "science" lost nothing; and matamata stew was good enough for me.



Florida Crocodile.



A Nine-Banded Armadillo.



Matamata Terrapin.

Once upon a time I ate wild meat of a kind that I can not mention with either pride or pleasure. I did not achieve it. It was thrust upon me. It was diamond-back rattlesnake, from Florida. The reptile was butchered to make a *zoological holiday,* and create a snake-luncheon party. Much against my inclination, I assisted at the obsequies. I cut off a lot of the white-meated rattlesnake steaks, and they were fried like pork chops. All the women and men of that reprehensible luncheon-party ate of those steaks, and said they tasted like real meat; but somehow it did not seem to me *quite* the thing. It was too much like eating something on a bet.

I did not care for that fried rattlesnake, even though its original owner could (and did!) with his deadly venom kill a mean and savage rat in thirteen minutes.

People of the Latin race are far more given to gastronomic experiments, and the actual consumption of strange meats, than the Anglo-Saxons or the Aryans or the Malays. In Paris I disgusted Professor Ward by declining to eat snails with him. My answer was, "Why eat snails in Paris?"

At Naples we tried stewed octopus—real, sure-enough Victor Hugo "devil-fish." It was as salt as the briny deep, as tough as a rubber hose, and absolutely unchewable. We had to give it up. Nothing but the predatory animals of the Napoli docks can get away with it.

I have eaten monkey; but once only. Most monkeys are, like squirrels, too smelly to eat; but the teetee of South America, roasted, is far better than any squirrel-meat that I ever tried. It had no unpleasant nor peculiar flavor. The howling-monkey, from the same region, has a strong and disagreeable wild-animal odor, and it would

be a bold and hardy experimenter who would attempt to eat the flesh of an adult.

Some of the larger monkeys of India and Ceylon are practically odorless, and I always felt sure that their flesh would be good. The Animallai hill-men, known as Mulcers, eat the black langurs as often as possible; but their stomachs are known to be very strong.

I never ate orang-utan, nor ape of any kind; but in Sarawak, Borneo, a Chinaman once got hold of a perfectly good orang, cooked it nicely, and taking a tray-load of it on his head went through the bazaar, crying:

"Roast beef! Roast beef! Who will buy my fine roast beef?"

And Sarawak says that he sold his stock as beef; that it was consumed on that basis, and it was a long time before the victims learned the facts; which was a good thing for that Chinaman.

In Borneo I once was offered a repast that phased me. With two other natives I paddled up a creek between Dyak rice fields until we came to a tiny hut set ten feet high on four posts. The habitant and his friend were at home; and at their cordial invitation we climbed up to their abode, to see its interior.

On a bed of ashes a dull fire glowed; and across it lay the remains of a four-foot snake that my friend the Dyak had just then roasted over the fire. It seems that as we drew up to his dock he was eating roast snake off the cob. As we sat down to visit, he took up his unfinished meal, took two or three bites to show us that it was perfectly good, then chopped off a foot of it and hospitably offered it to me. Having recently dined sumptuously (off

a pint tin of hare soup) I was unable to join mine host in his modest repast.

A few days later I ate my first argus pheasant, at the head of the Sibuyau River; and it was truly fine. At the same place I ate my last muntjac, otherwise known as the "barking-deer," because its cry sounds like the yapping of a small dog. In all the Orient I found no mammalian meat quite so good as that of the muntjac.

The gaur, of India and the Malay peninsula, furnishes fine beef. The flesh of the beautiful axis, or spotted-deer, is excellent, but a little dry; and the sambar is exactly like our wapiti.

One of the rarest meats that came to my table in the Far East was that of a manis, or pengolin, a scaly ant-eater closely related to the armadillos. For zoological reasons it had to be served as a stew; which is a poor way to cook meat of doubtful value. All suspicious meat is much safer when broiled, or roasted very well-done, or even burned on the edges.

The rarest meat that I ever ate in North America was perfectly fresh steaks of the musk-ox. Mr. Paul Rainey brought it down from Ellesmere Land on his chartered steamer *Beothic,* and it was excellent beef. There was not even a trace of "musk," either in odor or in flavor, and after that experience, and more than ten years spent in the society of living musk-oxen, I am ready to make oath that the "musk" of the musk-ox is wholly imaginary.

One word in regard to the cooking of queer or doubtful meats.

In hungry lands, many a man and woman will sit down to a dish of meat that is not 100 per cent fine, and that in peace-times would not be entertained. On such occa-

sions, remember that a little hot sauce can carry much virtue. Curry was invented for the Orient, in order to disguise poor meat, and make it palatable. The immortal "curry-stuff" of India has rendered many a hopeless goat and lean fowl palatable to the sahib, who on plain dak-bungalow cooking would have gone to bed dinnerless and hungry.

The curry-powders of India have covered more sins than charity. When curry alone is not sufficient to disguise the character of almost impossible meat, sweet mango chutney will do all that is necessary. As two of the foundation-stones of civilization in the Far East, we call down the blessings of heaven upon the inventors of curry-powder and chutney. In cooking a suspicious piece of meat, never stew or boil it. Boiling always accentuates rankness. Broil it, quite well-done, and if still in doubt, burn its outside to a crisp. Even with good meat the searing of a hot fire imparts to the best chops and steaks an aroma and an exquisite scorch flavor that can not be obtained otherwise. To an epicure who knows the game, that flavor is delicious beyond compare. In comparison, the taste for "high" game is the crude preference of the caveman for a stale bone.

For doubtful or too-gamey meat, the first preference is fierce broiling, the second is roasting, well-done, and frying comes next. If the finished product still is off-color, flavor it with Worcestershire sauce, or Mandalay, or H. F. sauce. The very best thing is curry and rice, which only one Western cook out of 50 millions knows how to make à la India. Fortunately for me, a Lady whom I know was carefully taught by a British army officer fresh from the Punjab, and she knows how to make an India curry that steadily holds the championship of the United States.

X

ADVENTURES WITH WILD-ANIMAL INTELLIGENCE

Every young sportsman or collecting naturalist, before he can feel that his chances for success are really good, requires a certain margin of observation and experience with each big-game species he essays to conquer with the rifle. The man who meets a big species for the first time is agog with wonder and anxiety. Usually the greenhorn's first try at a big species goes into the discard, through the lack of animal intelligence in the man behind the gun.

My first impressions of the wild Asiatic elephant arrived in a somewhat damaged condition, and the goods were otherwise not up to my expectations. I had trekked down from the wondrously parklike and beautiful Nilgiris ("hills" seven thousand feet high!) to the rather commonplace Wynaad forest, to hunt for the Indian bison, now known in the books as the *gaur*. It was not on the cards that I should hunt elephants, and I had no leave or license therefor. The end of this story will reveal the kindness of fortune to young fools.

On my second day of hunting in the great Wynaad, I went out companioned only by one timid old native, who could track superbly but who had within him no sporting blood whatever. After a long, running shot at a group of bisons, we saw a herd of eight elephants, a quarter of a mile off, but in view of the five hundred-rupee fine that hung over them, we virtuously let them go in peace. A half-hour later that same herd implanted itself in our path; and again we said, "Get thee behind us, Satan!" and went

another way. And then, an hour later, my evil genius again brought that herd close by on our port quarter, quietly eating grass. The herd was made up of a big tusker, a young tusker, four females and two baby elephants. They were pulling up big tufts of long grass, jerking them from side to side to switch the dirt off the roots, and then rolling them up to their mouths. Some of them were brushing flies off their backs and heads with small green branches that they had broken off for that purpose.

Before that third temptation my iron-clad probity broke down. "This," I said in sign-language to my old *shikari,* "is too much. Human morality cannot endure it. I am going to stalk that herd and kill that big tusker if I die for it. If they fine me five hundred rupees, his skin and skeleton will be worth it." Seeing the fire in my right eye, the old native washed his hands of the crime, retired a quarter of a mile and climbed a tree!

I had no more difficulty in stalking that herd than one would have in stalking a horse in an orchard. Keeping a tree-trunk squarely between the eye of the elephant and me, I approached within thirty feet of him. But it did me no good. Up to that hour I never had seen anybody shoot an elephant. I knew only the front head shot, and I virtuously reasoned that I had no right to try any experiments on the side. I backed out and made another stalk, close up, but the elephant swung away from me until I was again unable to get a front shot. I was at one time so near my elephant that I could have touched his hind quarters with a fish-pole. The other elephants were ranged in a semicircle in front of me, in a park of grass and small trees no larger than a circus tent. In fact, it made me

think of an Iowa-prairie circus without the dog-kennel. Once more I made a close-up stalk, this time in front of the tusker, fired my No. 10 smoothbore, aiming for the brain, but failed to reach the vital spot and disturbed the elephant not at all seriously, so far as I could discover. Then the herd ran off about three hundred yards, and with outrageous contempt began feeding again. That finished me. An hour later, however, and ever afterward, I realized that it was lucky for that half-baked collecting naturalist that his idiotic bullet did not find the brain of the great beast.

Now, the education involved in that well-nigh bloodless episode permanently impressed my alleged mind. The vision of the elephant is very inadequate. The eye is of only one-quarter the proper diameter for the protection of its owner. It should be six inches in diameter and have the power to function straight to each side, like the eye of a fish, for it has a greatly restricted side view. The hearing of the elephant is also poor, and the sense of smell is weak, partly for the reason that the constant movement of the trunk makes the olfactory nerves sluggish. Every time the trunk descends to the earth in seeking food, the animal's sense of smell is almost obliterated. These three sense handicaps leave the elephant at the mercy of his enemies.

Later on, I learned things about the mind of the Indian elephant that made me forget the dulness of his sight, hearing and sense of smell. There are two or three facts about his mind that compel high regard. Of all the wild animals known to me, he is the philosopher-in-chief. He it is who most quickly learns that man's crafty mind is superior to the great strength of beasts; that it pays to be

good, and that obedience in camp and on the trail promotes peace, boiled rice and longevity. Catch a full-grown chimpanzee or orang, and what do you get? A savage animal, an implacable enemy with the cunning of a devil and the strength of four men. You cannot for a moment trust yourself within his grasp. Even when sick and three-quarters dead, he will reach out, seize your friendly hand and bite you to the limit in his last gasp. A wild lion or a grizzly bear may in time become quiet and trustworthy; but a big and powerful ape—never.

Now, how is it with the Indian elephant? If you catch a score of fully grown elephants (with the help of tame elephants that are nearly as wise as their *mahouts*), you can easily conquer every one of them and train them to service so thoroughly that in six months they look and act just like the professional workers. Mr. G. P. Sanderson once told me that, in six weeks after the catching operation, his men had a newly caught elephant tamed, trained and successfully dragging and arranging logs in the timber-yard. In the whole class *Mammalia,* can you equal it? All this means that the Indian elephant is a profound and practical logician and philosopher, who knows when to cease fighting. Think what it would have meant to unhappy Ireland if De Valera ever had acquired as much sound sense as an Indian elephant.

Wild animals in their haunts put forth their keenest mental efforts in detecting danger and in inventing means of escape from it. Closely allied to the mental faculties that promote successful escape are the ability and disposition to fight and the final passion for revenge. This leads me back to the gaur, the jungle colleague in the Anamalai Hills, in Assam and in the Malay Peninsula

of the wild Indian elephant. In spite of the fact that once I was the champion greenhorn big-game hunter of India, with my own absurd guns I bagged eight gaurs for the museums of America without being killed once.

The full-grown gaur is a big, heavy and powerful beast, as large as our American bison and equipped with horns far more dangerous that those of the bison. The gaur herds live on hard ground, in the thickest forests they can find. Of all the world's wild cattle, the gaur species is one of the finest. In the Malay Peninsula it is called *seladang*. The magnificent mounted head, with almost jet-black hair and enormous horns, of a gaur shot in Assam not very long ago by Mr. Archibald Harrison, of New York and London, is one of the very first specimens seen in the National Collection of Heads and Horns in the New York Zoological Park. The horns measure twenty-seven and three-eighths inches in length.

If I were to speak only from my own experiences in hunting and killing the guar, I should say that he is not a particularly bad citizen and that the pursuit of him is reasonably safe. But I am obliged to mention, in illustration of the gaur's temperament, courage and fighting qualities, some unhappy incidents that came close home to me. Two of my friends, while gaur-hunting, were terribly tossed and pounded by the horns of infuriated bulls. One of the men, Captain H. C. Syers, superintendent of the Military Police of Selangor, Malay Peninsula, died within a few hours. The other, a young Englishman named Rhodes Morgan, then deputy conservator of forests in southern India, got his enemy's head as a trophy, but not without coming, himself, within hailing distance of a tragic end.

Mr. Morgan was fond of big-game hunting and had killed over twenty gaurs. All went well until on an unlucky day he shot four .50-calibre express-rifle bullets into a lusty young bull without putting the animal out of business. What then occurred is best told in Mr. Morgan's own words:

"We followed the bull down the side of the hill, where he had evidently rolled, and, as I was looking about, trying to make out where he could have gone, I suddenly caught sight of his nose not two feet from me! He had backed himself into a dense mass of creepers and was lying in wait for me! Nothing was visible but his nose, and the instant I saw it, I felt I was caught.

"In half a second, snorting like a steam-engine, he sent me flying through the air. I fell on my back and was immediately struck a blow on my ribs that made them spring inward as the top of a hen-coop would with a heavy man sitting on it. I felt that my last hour had come. The gaur struck me with his head again and again, on my breast, back, sides and thighs, and sometimes he struck the ground only in his blind fury. The blood was pouring in a stream from his open mouth, and the hot breath from his nostrils sent the blood in sprays all over me.

"I lay quite still, and he presently stopped and looked at me. Imagining that I was dead, he walked slowly away a short distance and stood there, eying me. There was the stump of a huge tree near me. I thought that if I could only drag myself behind it, I should be safe. I began to draw myself along, bit by bit, toward it, but in an instant the bull rushed at me again and struck me several fearful blows. I felt now that nothing could save

me. He tried to turn me over with his nose, that he might get his horns into me, and, getting one horn under my belt, he lifted me up bodily. Luckily it was an old belt, and the buckle snapped. He then endeavored to rip me up; so I seized his horn and held to it with all my strength. In trying to shake himself free, he took the skin entirely off the under side of my right arm with his horn.

"The whole of this time, no fewer than six Irulars had been calmly looking on, and I heard one of them say, 'Dear me! the bison is killing the gentleman!' Then another said, 'Send for the shikari to shoot it.' (The shikari was two miles away with my tiffin-basket!) One of the Irulars now uttered a most diabolical yell. The bull threw up his head, turned tail and dashed down the hill. Had the man only yelled at first, I might have been saved from being almost pounded to jelly.

"The Irulars all ran forward, then, to help me to stand up. One of them picked up my rifle, which lay broken by the fall and stamped into the mud. As soon as I had been supported to a large rock, my first act was to feel myself all over to see if any bones were broken. After I had been lying on the rock for an hour, my shikari came running up, lamenting. I must have presented a horrible spectacle; for I was one mass of black mud, smeared all over with blood. The shikari gave me a drink of water, and, having washed off the blood and dirt, I felt so much better that I determined to kill that bull if possible."

He *did* kill it!

The collecting naturalist who diligently pursues his calling in the East Indies is certain to have experiences with the intelligence of the apes and monkeys of that wild

region. Among apes and monkeys, the mental capacity of species ranges all the way from ninety per cent down to zero. Some species know so little and are so poorly equipped for survival that they seem to have been born only for sorrow and destruction. In the Anamalai Hills the big, jet-black, uncanny, black langurs are particularly clever at evading the murderous white man.

My hill-men always vowed that the profanity of these animals was aimed at me because I was white and therefore clearly not one of them. I never admitted that the theory was true. But we had demonstrations of it while slowly and silently marching in single file through that hunter's-paradise forest of bamboo, teak and blackwood, on the alert for elephants, bisons, sambur-deer, axis-deer, bears or wild hogs. Suddenly there would come a burst of raucous sound, usually from the lower branches of a tree directly over our heads. "Wah! Wah! Wah!" was the first cry from several throats, in tones of defiant scorn and hatred. Out of a close-order group of eight to twelve big forms like black imps in an inferno, a half-dozen pairs of savage eyes would glare down upon us. And then came the real explosion, say thirty feet above our heads, of deep, guttural roars, saying: "Wah! Wah! Wah-*hoo*-oo-*hoo*-oo-*hoo*-oo!" We all jumped at the sound and laughed at our own nerves.

As I got in position forthwith to "collect" a monkey, a black face encircled by a ring of white hair would be stealthily peering at me from the fork of a tree. Then, the moment I raised my rifle, the tree-top became so alive with wildly leaping black forms and flying tails that a fair rifle-shot was out of the question. As the troop ran through the tree-tops, we rushed along below. At last,

after pausing to look at us once more, the monkeys hid. Only one or two black faces most cautiously peeped from cover. My men would pant and peer and point, to show me where to fire, but seven times out of ten I was so slow on the draw that the monkeys would take a fresh start and again rush on. Once we saw seventeen troops of those black langurs in one day, and we earned all of them that we ever collected. They believed in the survival of the fittest, and they were more expert in running and hiding than we were in chasing them. So the museums of America received less than a quarter of the black langurs to which they were entitled.

Once upon a time in the Wynaad we surprised a couple of big gray langurs, feeding in a small grove in the midst of a very thin and very low forest, which was overgrown below with tall grass. When the monkeys saw us, they tried to hide in the tree-tops, but, finding it impossible to escape in that way, they ran. We chased them through the grove without getting a shot, but at last, when they reached the farther side of it, we felt that they were just the same as skinned and mounted. In those low trees they would fall an easy prey to any of our weapons. Who ever heard of a monkey coming down from his native tree-top to escape a hunter? But when the monkeys saw that the trees no longer afforded them shelter and concealment, they leaped to the ground and started off at a tearing gallop through the tall grass. We ran after them as hard as we could go, but so long as they remained upon the ground, they were completely hidden from us. Very soon one of them leaped upon a white-ant hill and looked back to see where we were. The instant my gun touched my shoulder, he was down and away again, with

the most astonishing bounds and with flourishes of his long tail. We renewed the chase at our best speed, and once more a monkey leaped up to see where we were. Four times this manœuvre was repeated, the animals gaining ground each time, until at last we gave up, beaten. Their intelligence had been keener than ours.

In the summer of 1899, not in the East Indian jungles, where, though I hurt my eyes with looking, I never once saw a large snake free and going under his own steam, but in our own New York Zoological Park, six months previous to its opening, my one and only thrilling big-snake experience occurred. I was scared nominally to death, not so much by the snake as by the fear of newspaper publicity.

We bought the snake, a vigorous and vicious black-tailed python, because it was plentiful and cheap. Our carpenters built for it a palatial temporary cage, back in our new service-yard, where many other wild things were encamped. At five o'clock the python was safely landed in its new quarters, and with serene minds we went home. But the next morning a scared messenger-boy rushed to meet me and panted out, "The big snake has escaped, sir!"

Then and there a bottomless pit yawned in front of me. It is no disparagement to a now great reptile curator, Mr. Raymond Lee Ditmars, to say that twenty-three years ago we were all as green as grass in the handling of big and new pythons with bad tempers. Our kind carpenters had carefully left a six-inch hole, most cunningly concealed from all outside view, at an upper corner of the cage! If that seventeen-foot snake had disappeared in the dense jungle that then surrounded the service-yard, we would have the time of our lives in finding it, let alone

catching it. And just think how the great hungry metropolitan dailies would feature those horrors! I saw a perfectly good, though slightly under-done, director dragged down into oblivion by one escaped python that cost only $175. For the snake I cared less than nothing. It was myself that I sought to save.

A half-dozen men were assembled and lectured on "How We Catch Big Snakes." Then we beat the bushes all around the outside of the yard, but never "got a rise." Next we drew in our skirmish-line and went through the yard, itself, foot by foot. Under the floor of the temporary wooden cook-house that stood in the centre of the yard, we found our snake, coiled at the central point and calmly awaiting attack.

We knew that the snake was ours! But how were we to prove it, without being bitten, struck or squeezed? We took up a plank from the cook-house floor, and the reptile-man tried to catch the python's head under a gunny-sack. In vain. The python promptly uncoiled and shifted to a position beyond reach. We took up another board, and, while other men diverted the snake's attention, the carpenter and I seized its plump and vigorous tail and quickly hauled four feet of it from under the floor.

Once more we thought that python was ours; but it had made other arrangements. Inch by inch and foot by foot the tail pulled out of our grasp, and, although we were husky men, disappeared in spite of us. Its constricting power was at least one hundred per cent greater than our own tensile strength. The men working at the snake's head also were baffled. Two feet beyond their reach the serpent lay coiled, and every time a hand ad-

vanced, the head lunged at it. Then I had a flash of intelligence. Bidding the men maintain the *status quo,* I hurried to the carpenter's shop, procured a hickory stick three feet long and quickly fixed a stout screw-eye into its outer end. I ran a strong chalk-line through this screw-eye and made a slip-noose.

I found the snake at parade-rest, but the moment I put my head under the floor and looked at him, he struck at me. The next time he lunged for my devoted nose, his head went through my noose. I jerked it taut, well behind the swell of his neck, and for the third time he was ours. He fought us for all he was worth; but we held him. When we got his head within grabbing distance, Mr. Ditmars seized him firmly by the neck. He came out foot by foot; and at every third foot another man took hold, to keep him straight and discourage constriction tactics.

When all was over, I assembled the men who had participated, lectured them on the folly and wickedness of newspapers and pointed out the depth of our disgrace if the news of that escape once got away from us. The men solemnly promised, and the unexpected happened. Not one newspaper got the slightest tip of that affair until it was five months old and so hopelessly cold that it could not be warmed over. In those early and uneducated days, thrilling escapes and adventures quite often got into the papers before they occurred.

In my estimation, the chimpanzee is next in intelligence to man, and the orang-utan is a good second. The "chimp" is nervous, alert, sure-footed and showy; the orang is sanguine, deliberate, steady and rather hampered by the great length of its toes. The chimpanzee is the more effective animal for stage performances and

therefore the better known to American audiences. Personally, I prefer the orang, because it is an animal of better disposition and more reliable affections. I had great success in my quest for museum specimens of the orang-utan. On the Simunjan River, of Sarawak, Borneo, I saw many nests of orang-utans, which from the very first excited my admiration for the intelligence of the animals that built them.

So far as I can learn, throughout the range of the great order *Primates* (man, apes, baboons, monkeys and lemurs), there is no other species except man that regularly or irregularly builds a comfortable place to sleep. Is it not strange that the gorilla, chimpanzee, siamang, gibbon and a host of baboons and monkeys do not break leafy branches and the ends of branches and make tree-top nests in which to repose? It was said by Du Chaillu that one species of chimpanzee builds up a mass of green branches in order to take shelter under it from heavy rainfalls, but fresh details on this subject are lacking. In captivity the chimpanzees carefully make of their straw soft beds on which to sleep, and it is all the more to be accounted strange that in their jungle they make no leafy nests.

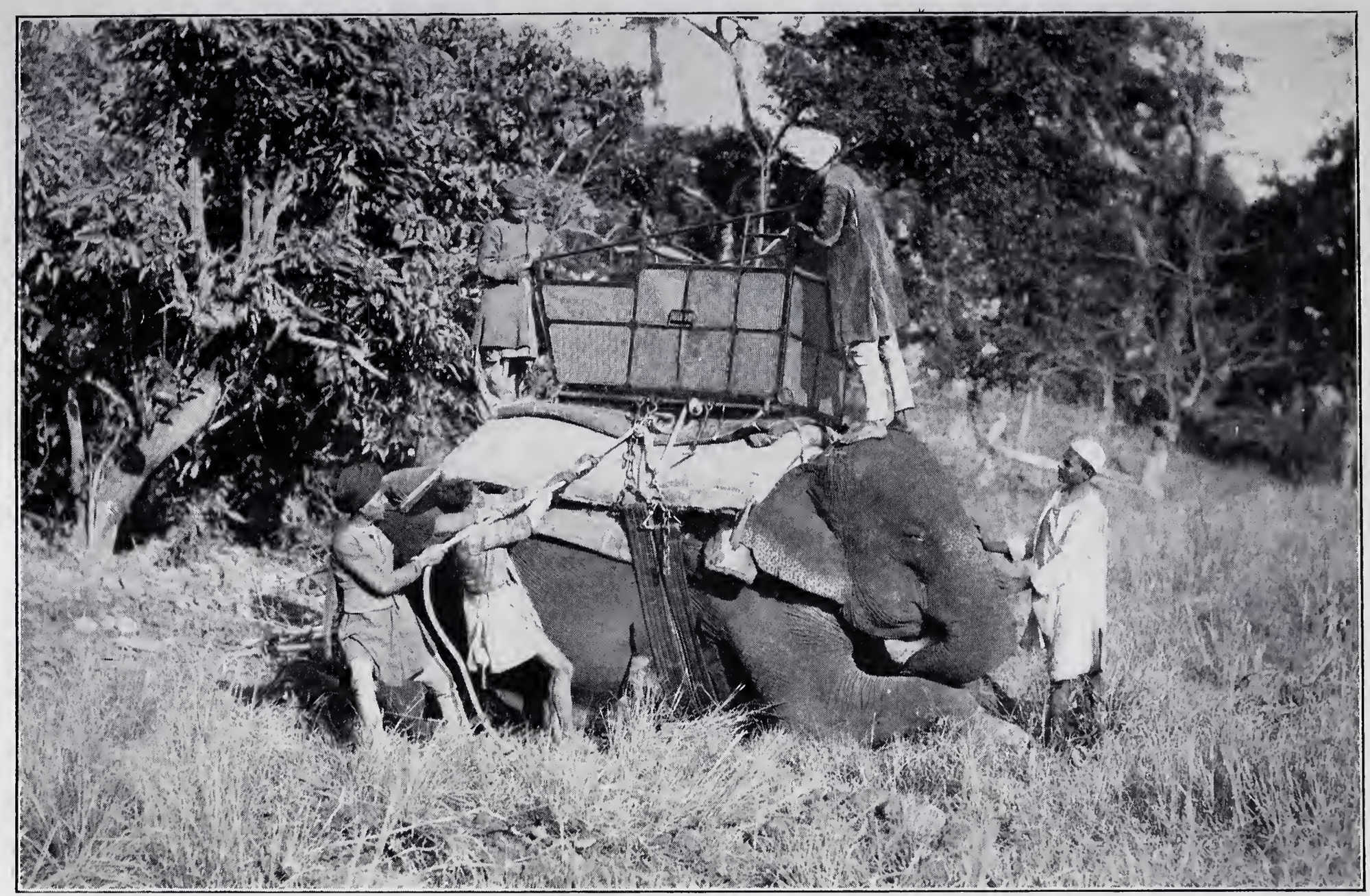
With the orang, however, nest-building is a habit transmitted by inheritance from parent to offspring. Once in the New York Zoological Park we made an experiment to test out this theory. I selected a suitable sapling and permitted a three-year-old orang-utan to climb into its leafy top. The animal lost not a moment in setting to work. He broke off leafy branches from two to three feet long, laid them crosswise in the main crotch of the tree-top, pointing the stems in all directions. In ten minutes the nest was complete, and the orang lay down upon it, flat

upon his back. Very naturally his feet and hands reached out toward four different points of the compass and laid hold of branches with the safety clutch of the jungle.

Once on the Simunjan River I saw seventeen orangs' nests in one day, and one of them was of colossal size. It was about seven feet across and three feet deep. Upon it lay "the old he-one"—one of the largest orangs that I "collected." His length was four feet six inches from head to heel, his arms and hands had an eight-foot spread between tips and his weight could not have been less than 250 pounds. And there he lay at noontide, dreaming the happy hours away. When he fell into the water and we laid hold of him to haul him into our boat, he looked like a huge and terrible monster from another world. No; it was not in the least like taking a human being captive, Linnæus named the orang-utan *Simia satyrus,* which means "satyr ape." The name was indeed well chosen; for that great red beast, with a flat face thirteen inches across, can discount the champion satyr in the mythology of the Greeks.

The second orang that I obtained alive was a very intelligent animal. He disliked the Dyaks who captured him, but, when untied and placed upon the floor, he gave me "the once over" and promptly appointed me his foster-father. We lived together four months. His devotion to me knew no bounds, and he was attached to me with strong ties. He was willing to share everything with me, especially my bed, but his snoring and sneezing made it impossible for him to lie on my chest as he desired. He knew more and could do more than any human child of his age. He was a most interesting infant.

The great island of Borneo is in truth a garden well



From a photograph by Johnston & Hoffman.

A Hunting Elephant Receiving Its Howdah.

Tigers and leopards are commonly hunted in India in a "howdah," on the back of a trained elephant.

The Big Male Orang-Utan of the New York Zoological Park.

The flat and wide "cheek callosities" of the old male orang are well shown.

stocked with Nature's wonderful works. Its men, its animals and its vegetation equally challenge the admiration of all intelligent travellers. Moreover, it is a land of romance as well as natural treasures. It is the home not only of the unbelievable Dyak and the marvellous orang-utan, but of the astounding gibbon, the sly argus-pheasant and the most voracious of all man-eating crocodiles. Man in his recent wild craze for more rubber has frayed off some of the edges of the forest, but only the edges. On Borneo as a whole the impression made by man is a mere trifle. In Borneo Nature still reigns and will reign supreme for a thousand years.

To the zoologist the greatest natural wonder of Borneo is, however, as I have implied, the orang-utan—and please do not spell it "ou" or pronounce it "tang," forms etymologically and morally wrong. As I write the magic name, which in Malay means "jungle man," I feel the spell of the Indies and begin to see visions of the past:

A taste of an India curry, the smell of a sandal-wood fan,
And lo! I am back in my jungle, a buoyant and fresh young man.
Puck's girdle is beat to a frazzle as out to the East I go,
Round half the world in a moment, to wonderful Borneo.

Sweet is the smell of that jungle, soothing its hot-house air,
Rank and dank is the forest, with life all around to spare.
Once more will the red-haired orangs waken and go their ways
From their leafy nests in the tree-tops, as they did in those other days,

And with whistling wings the hornbills will go sailing overhead
Beyond the reach of a 12-gauge and its modest pellets of lead.
In the hills where the long-armed gibbons worried me long ago
I wonder if any Dyaks live there whom I used to know.

PART II

BRINGING SOME WILD ANIMALS DOWN TO DATE

XI

THE WORLD'S ELEPHANTS TO-DAY

(1924)

THE supreme thrill of civilized childhood is broadcast in one shrill and piercing cry: "The Elephants Are Coming!"

And oh, man! Never while life endures can we forget that grand and glorious feeling when we boys from the farm piled into Eddyville, Iowa, in 1861 and were electrified by that moving mountain of wrinkled gray hide, flapping ears, unbelievable trunk, and enormous white tusks known as "Old Tippoo Sahib," of the Van Amberg show. Those tusks almost touched the ground; and by that well-remembered token we know that Tippoo really was a whaling big elephant. I am sure that his equal among Indian elephants does not now live anywhere this side of India and the Far East.

Even the largest travelling shows of to-day have no such splendid old "he-ones" as Tippoo was. The showmen are afraid to carry on with them. They are too prone to go on rampages, raise Cain, and even kill visitors. People are now much more expensive than they used to be. Damage suits are easy, and, in awarding personal damages, many juries are absolutely merciless. The travelling showmen are wise, and commendable for their caution. To-day the standardized herd of show elephants, big or small, consists chiefly of modest and inoffensive spinsters, mostly immature, who earn their bread and hay by honest labor and make no fuss about The Life.

Although the Americas now have no free wild ele-

phants of their own, they have not always been thus bereft. The time was, and that not one day more than thirty thousand years ago, that magnificent hairy mammoths, from *twelve to thirteen feet high,* wandered over western Alaska, clear up to Charlie Brower's place at Point Barrow, and were trailed by the somewhat smaller mastodons. I can prove this by a fine mammoth tusk of fossil ivory that was presented to me by Alaska's delegate to Congress, Dan A. Sutherland, and by some huge molar teeth of both mammoth and mastodon coinage, from Charlie Brower.

From Alaska the great hairy mammoth marched down the west coast of North America to Oregon, California, and central Mexico. In the United States it split off two or three new species that ranged eastward across the United States to Indiana, Kentucky, and elsewhere. The great American mastodon also travelled south and east and finally fetched up in eastern New York, where it sank down in various bogs and safely buried skeletons of itself for the benefit of the natural history museums of to-day. The "Cohoes Mastodon" is in Albany, the "Warren" skeleton is in the American Museum of Natural History, New York.

The living wild elephants of to-day consist chiefly of fragments and remnants inhabiting shreds and patches of the interior and most remote jungles of southern, eastern, and equatorial Africa, southern India, Ceylon, Assam, Burma, Siam, French Indo-China, the Malay Peninsula, Sumatra, and British North Borneo. They have been divided by nature into two groups, Indian and African. All the elephants of Asia and Malayana are of one species only, the Indian (*Elephas indicus*), marked by small tri-

angular ears, two huge domelike bumps on the two halves of the forehead, five toes on each front foot and four on the hind. The body is huge and bulky, and the legs are short and thick. The tusks average much shorter and smaller than those of the large African species. The very longest Indian tusk on record is eight feet nine inches long, seventeen and one-fourth inches in circumference, and weighs eighty-one pounds. There are only four tusks on record that exceed eight feet, and in Rowland Ward's *Records of Big Game* the recorded tusks go down as low as four feet four and one-half inches.

The height of the largest male Indian elephant is involved in doubt. Presumably the finest examples of the species are those that have matured in a wild state, and therefore are not measurable on the hoof. When a big elephant is dead, probably no man on earth could measure its shoulder height as it lies and hit upon the figure representing its standing height when alive. Nor is it likely that any two men could measure a dead elephant and find their figures for height in agreement. The position of the dead fore leg is a puzzle. As that member lies prone and relaxed in death, it would be almost impossible to know how much to push it up into the shoulder in order to place it just as in life.

We know that among captive Indian elephants a male standing nine feet eight inches at the shoulder is a mighty big one. We read of dead ones that measured ten feet eight inches, and one of eleven feet, but we doubt the accuracy of the operation. As for myself, I am perfectly certain that no Indian elephant ever measured ten feet nine inches on the hoof, because that was the height of Jumbo, a very big African. The late G. P. Sanderson, a

man of many elephants, never measured an Indian bull that exceeded nine feet eight inches.

The lozenge-shaped ridges of enamel on the otherwise flat grinding surface of the molar teeth, and also other characteristics, have caused zoologists to erect the African elephants into an independent group known as the *genus Loxodonta.* The precise number of species that exist in this group is involved in some doubt, according to the accepted author in the case, and we will not here embark on the stormy sea of classification. It is quite sufficient for the purposes of the general reader to know that in all Africa there really are at least four or five perfectly good species of elephants. Of these at least three are huge, one is just medium, and the last one is a genuine pigmy.

The whaling big African elephants, like dead Jumbo and our living Khartoum, are dotted through the Egyptian Sudan and Uganda Territory, Kenia Province (formerly British East Africa), Tanganyika Territory (*née* German East), and southward to Rhodesia, the Transvaal, and Natal. You must go far and hunt long to find any.

The elephants of the now famous Addo Bush represent a small species (eight feet high), and it is safe to say that no one hundred and twenty elephants on earth ever perplexed and worried a good government as much as did that particular bunch. The Addo Bush is a very small, isolated forest, quite surrounded by new farms, including numerous irrigation ditches. Pressed by shortage of food in their preserve, the elephants naturally raided the farms, seeking what they might devour. They ate much and spoiled more; and the unhappy farmers appealed to the government for relief from too much elephant in their cosmos. The government thought of relief measures. A

From a copyrighted photograph by Captain Kermit Roosevelt.

A Herd of African Elephants in an Open Forest.

From a photograph by Underwood & Underwood.

Showing Off the Baby.

A Ceylon elephant mother, seemingly very proud of her newly arrived offspring. A baby elephant is one of the few animals born in full possession of all its faculties.

fence all around the Bush was utterly impossible, for several reasons. Again, the elephants could not be moved without catching and crating and hauling them, which was impossible. And no one wanted elephants to work, so there were no "*keddah* operations."

The one last and most lamentable resort was to destroy all but a few of the elephants who had no place to go, and trust that a preserved remnant would not become another unbearable infliction upon the farmers. Major Pretorius was engaged to do the shooting; and, because it is everywhere a painful subject, the less said about it the better.

The big African elephants, measured from the White Nile and the Anglo-Egyptian Sudan clear down southward to Natal and the Orange River, are the largest of all living elephants. The longest, and the most beautiful, tusks in existence came from an elephant that was shot by an American, about twenty-five years ago, a short distance south of the Abyssinian border, and presently landed in the possession of King Menelik. By various channels they finally found their way into the ivory market of London, where they were purchased by Rowland Ward.

A very brief time thereafter they were offered to the New York Zoological Society, snapped up by cable, and, by the late Charles T. Barney, presented to the National Collection of Heads and Horns, in Bronx Park. The longest tusk measures eleven feet five and one-half inches, its greatest circumference is eighteen inches, and the weight of the pair is two hundred and ninety-two pounds. They are from the Sudan elephant species (named in Latin *Loxodonta oxyotis*), the colossal big-eared animal, two specimens of which have been measured (dead) in British East Africa by the two very competent American

taxidermist-naturalists, Carl E. Akeley and Herbert Lang, as being eleven feet four inches standing height at the shoulders. The measurement I accept without question as being reliable.

Jumbo, of the London Zoo, and lastly of the Barnum show, was carefully measured (surreptitiously) in 1883 in the show at Madison Square Garden by George Elder, a pole jumper, and Robert Gilfort, an acrobat, and found to be precisely ten feet nine inches. The heaviest African elephant tusk of authentic record is one in the British Museum of Natural History, which is ten feet two and one-half inches long and weighs two hundred and twenty-six and one-half pounds.

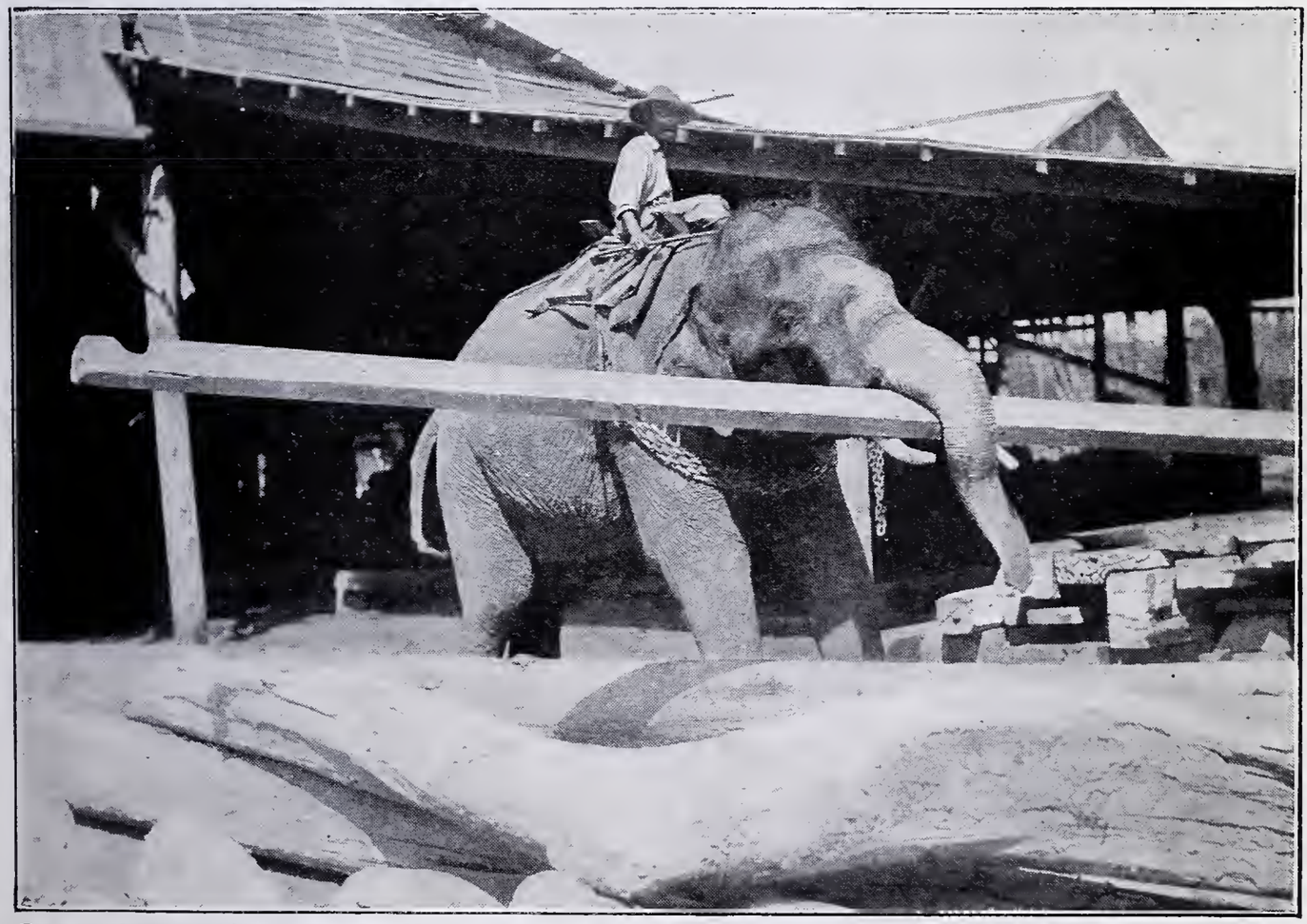
In what is now Tanganyika Territory, Africa, there is found a species of elephant with much smaller and more regularly triangular ears than those of the Sudan species, which is known as *Loxodonta knochenhaueri*—a barbarous name to bestow upon an elephant that is too far away to put up a fight. Down in Cape Colony the Cape elephant is *Loxodonta capensis*. Over on the west coast of equatorial Africa is a third species of little-known character, but I never have been able to get a good line upon it.

Now, however, we reach the foot of the list of African elephants, and find there a species in which I feel a thorough-going proprietary interest. It is the now-celebrated pigmy West African elephant, the most sharply differentiated of all the African elephants. Day or night, as far as you can see one, you can recognize it by its little semicircular ears, its miniature tusks, and its five front and four rear toes. Its body is short, thick, and heavy, and it totally lacks the long-legged and rangy appearance of other African elephants.

From a photograph by Underwood & Underwood.

The Awkward Squad.

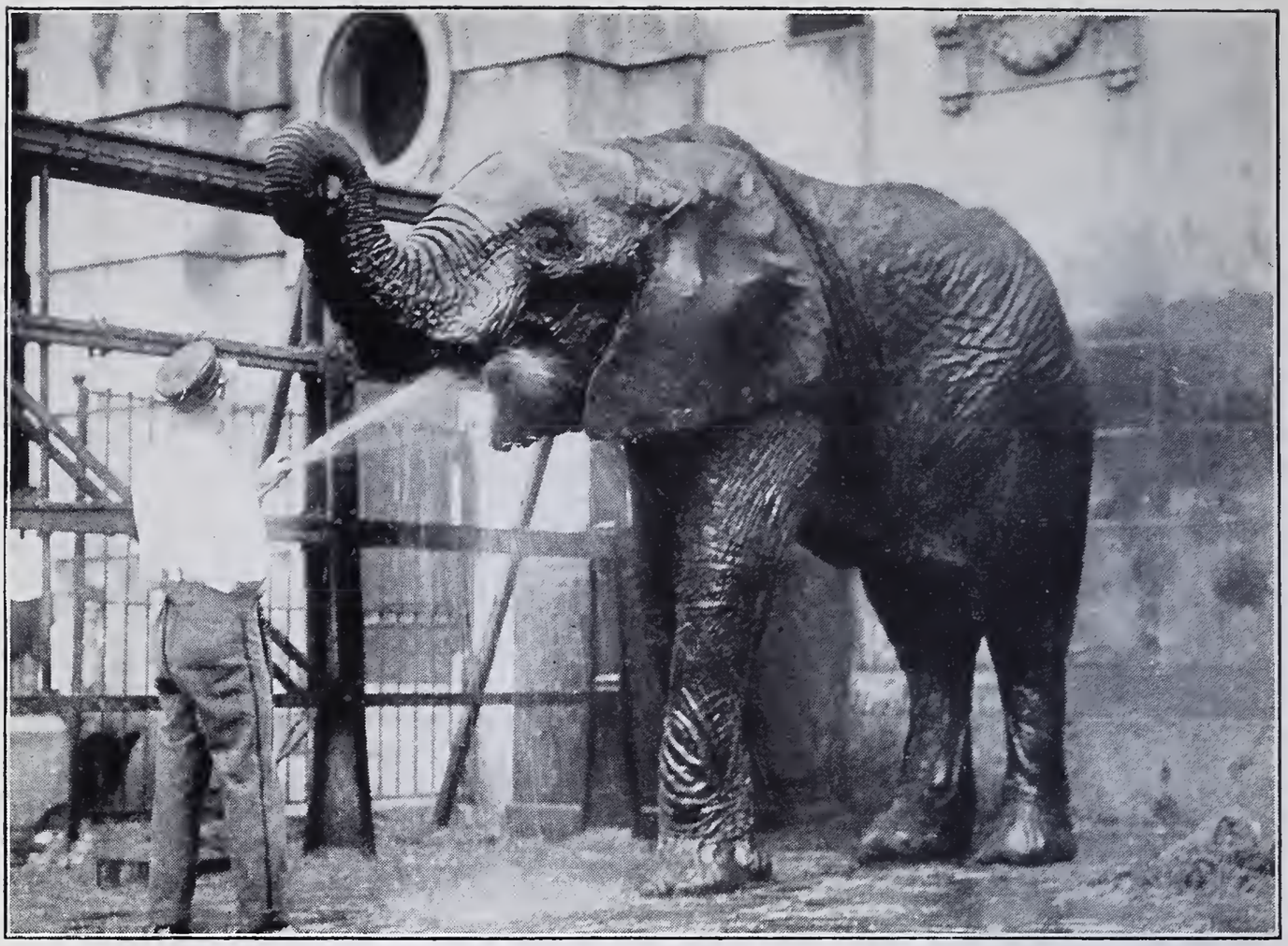
Half a dozen youngsters being taught a few fancy steps in the circus's winter quarters. These two-year-olds seem willing enough to learn, but appear to have trouble co-ordinating their feet and trunks to the commands.



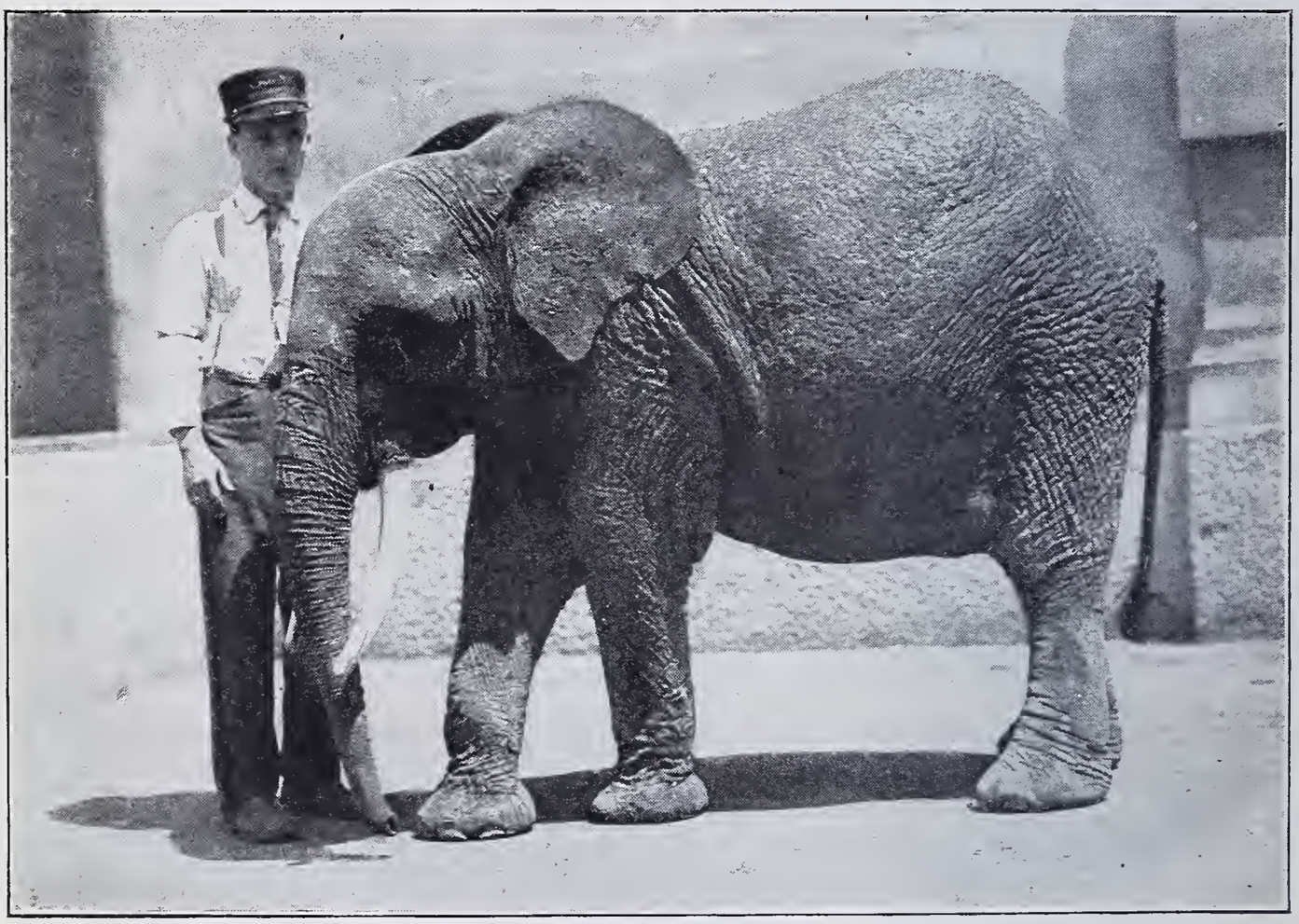
From a photograph by Brown Brothers.

A Movable High-Powered Derrick.

In Asia, elephants are used for all sorts of work—pushing down trees, piling timber, drawing carts, and lifting and carrying heavy loads.



Kartoum, the Big African Elephant, Who Broke Things Until a Special Spike Was Invented for Him, and Installed Generously.



Pigmy West African Elephant, "Congo."

The type specimen, in the Zoological Park, not quite fully grown.

Its tusks alone are sufficient to fix this species firmly on the rock of perpetuity. Our first pigmy accession, actually the "type specimen" on which the new species was founded, was Congo, who arrived in our midst in 1905. When he appeared to be fully grown, his height was six feet one inch and his weight was twenty-seven hundred pounds. His tusks were twenty-three inches long outside the lip, and in thickness they were about the size of a lady's wrist. Now, look at the tusks of any East African elephant of the age that Congo was then (about seventeen years), and you will find them of a totally different pattern. The equation will stand precisely as follows: East African tusks are to pigmy tusks as brogans are to satin slippers.

The pigmy elephant is celebrated for what the world doesn't know about it. We have had Congo from the late lamented German Cameroon country. The last one, Tiny, still a frolicsome, winsome little girl, came twenty months ago from near Fernan Vaz, French West Africa. We know of two others that came from the lower Kassai River country, and there the trail ends. The ivory market of the Cameroon country once handled hundreds of pigmy elephant tusks, "none of them over three feet long," so said my informant; but the independence of the pigmy species was not discovered and declared until in 1905!

It seems to me that the world's elephant population of our days and times was at its maximum about 1850, or seventy-five years ago. It was then that ivory-hunting was a thriving industry at "the Cape," in Natal, the hinterland opposite Zanzibar, and in all the Upper Nile countries. Those were the days of big-bore guns, two-ounce round balls of pure lead, and enormous expenditures of black powder.

On the plains of South Africa, Gordon-Cumming, a famous elephant-slayer, used to shoot elephants in the shoulder, then gallop alongside them, loading and firing as he rode, until the animals either succumbed or escaped. He related how he once had to fire *forty* two-ounce balls into a single elephant before bringing it down.

The list of Englishmen who have figured in the books of African adventure as professional tusk-hunters is a long one. A few of the outstanding figures of our time are Anderson, Gordon-Cumming, Sir Samuel Baker, F. C. Selous, Neumann, and James Sutherland. There are scores of others who might be named.

In his day and time Arthur H. Neumann was a great slaughterer of elephants. In his book he relates with pride and satisfaction, as his greatest triumph, the killing of fourteen elephants in one day! Just pause for a moment and think of it. A whole herd of great but slow-growing animals, wonderful almost beyond compare, and the patriarchs of a fast-vanishing genus, wiped out of existence in one brief day, by one sordid hunter, confessedly cruel by nature—and who a little later blew out his own brains in London, and went to meet his reward.

The slaughter of African elephants for their ivory is not by any means a dead industry. It is a going enterprise to-day. Only in 1922 the government of the Anglo-Egyptian Sudan advertised in the newspaper published at Khartoum, the capital, ivory-hunting licenses for sale in assorted sizes from ten-head permits up to one hundred! This is being done to reduce the elephant risks and damages to pioneer settlers and farmers.

Similar permits are issued for certain districts in Tanganyika Territory, wherein elephants were, and still are,

unmitigated pests to the unhappy natives having *shambas* (cultivated fields) in their spheres of influence. When a herd of hungry elephants proceeds to raid a native village and eat up the whole year's crop of food, it is a mighty serious thing for the natives. Mr. Don A. Baxter, an observing American traveller and sportsman who but recently returned from East Africa, states that in the Kaski District of Tanganyika there are probably about five thousand elephants, and the lot of the native inhabitants of that district is anything but a happy one. It is the cow and calf elephants that are the most industrious and persistent in clearing up native plantations.

For hunting in the elephant-ridden district, there is the "governor's license," which can be issued to kill any number of pest elephants from ten up to one hundred. In Kenia Province and Tanganyika Territory, the ordinary hunters' license is for one, two, or three elephants only, as the sportsman may elect; and the fees are in proportion. Mr. Baxter says: "The governments of these two provinces, both of which I visited, have the elephant situation thoroughly in hand. No elephants can be killed, and not a tusk of ivory can be exported, without the knowledge of the government concerned; and no tusk or elephant trophy or specimen can be shipped out unless it bears the government stamp. If a tusk weighs less than thirty pounds, it cannot be exported. To me there is less of real sportsmanship and less of keen enjoyment of the chase in killing an elephant than in any other big-game hunting in Africa known to me. When I killed a big old bull elephant, I felt as if I had cut down a giant oak tree a hundred years old that no effort of mine ever could replace."

In speaking of permits and fatalities to elephant-

hunters, by way of illustration, Mr. Baxter related a harrowing bit of recent jungle history. While en route to Mombasa he was offered by a Mr. Allen Black one-half of a one-hundred-elephant permit good for use on "pest" elephants in Tanganyika, where the natives of the ravaged districts wanted him. Mr. Baxter elected to go on an old-fashioned collecting trip in Kenia Province, on a two-of-a-kind basis. Eventually Mr. Black's permit was divided, one-half being given to a Captain Townley and the other to a Mr. Hearst. When about two weeks out, Captain Townley lost his life through the accidental discharge of the rifle carried by his gun-bearer. A few weeks later Mr. Hearst was caught and killed by a big bull elephant that he was attempting to bring down.

Mr. Baxter says that "if governor's permits are not given out too freely, the wild elephants of East Africa will not be wiped out in the next hundred years." Truly, this is good news.

In South Africa, only the remnants of former elephant abundance now remain. In the Belgian Congo Territory and in French West Africa, there seems to be no surplus elephant population, and no such elephant ravages as there are to cope with in the Sudan and in Tanganyika Territory. The officers and members of the admirable and active London Society for the Preservation of the Fauna of the British Empire have for years been pressing the British Government, and all other governments owning colonial real estate in Africa, to stop all systematic slaughter for ivory alone, to stop the killing and marketing of elephant tusks of small size, to make government game preserves (there are already about a dozen such), and, in short, to do everything that ought to be done to pre-

serve properly and sensibly the greatest game of the greatest game-continent of the world.

At present the excellently managed protected elephants of India—in Mysore, the Wynaad Forest, Cochin and the Animalai Hills, Ceylon, Burma, and Siam—seem to be in a good state of conservation. They are regarded as valuable state assets, and are treated accordingly. The day of the work elephant, in the timber-forest and on the rough jungle road, has by no means passed. The annual elephant fair and auction that regularly is held a short distance north of Calcutta still attracts about two thousand salable elephants each year, and makes an important event in Indian elephant history.

The training and working of elephants is one of the most fascinating chapters in the lore of wild-animal intelligence and training. Without loss of time I hasten to assure the reader that the officers of the Belgian Government, diligently working in the far interior of the Congo Territory for the past twenty years, have conclusively proved that the African elephant *can* be successfully caught and trained to service, along lines substantially parallel with those pursued with the Indian species. Unfortunately, however, the African blacks have not the slightest foundation of tame-elephant tradition and inherited elephant knowledge on which to build, and the Belgian officers found the Upper Congo negro as difficult to tame and train as the wild elephants of the jungle.

In India, the elephant-loving natives have for countless generations been catching wild elephants by wholesale trapping operations, breaking them, training them, and working them as regularly as horses and oxen. Elephant breeding is not pursued, for the very good reason that the

process of rearing elephants from birth to adult age is too slow and too expensive. It is a hundred times more expeditious and economical to build a *keddah,* catch a whole herd of adult elephants in a few days, and in six weeks or so train them and put them to work earning an honest living. The shameless manner in which members of the Elephant Alumnæ Association cajole and bamboozle the newly caught wild elephants in the *keddah* (capture-pen) while the noosers get their ropes around the feet of the wild ones without being killed is rather shocking to the high judicial mind. Without the use of tame elephants as decoys the capture and breaking of the wild ones would indeed be a tough job.

It is at this point that the most marvellous feature of the elephant mind comes to view. Here it is:

Without any exceptions, *every* wild Indian elephant quickly learns that mind is superior to brute force; that it is wisest to accept the inevitable, and to become a cheerful and dependable civilized worker. This is not equally true of any other adult wild animal with which we are acquainted. Of chimpanzees, orangs, baboons, monkeys, lions, tigers, leopards, and bears, the individuals captured when fully adult are practically impossible for training. Of those species it is only the most intelligent individuals, reared from childhood in captivity, who respond to training, and are worth the effort to train them. In all those species, and also including horses and dogs, stupid individuals are common, and all such have to be discarded. Now, is it not remarkable that *every* elephant can become a trained performer?

The normal elephant has a sanguine and serene temperament, his nerves are not jumpy, his perceptive facul-

ties and his memory are keen and precise, and his patience is infinite.

The number of things that an Indian elephant can be taught to do, and do correctly, is limited only by the mental capacity and industry of his trainer. Some of the elephant "acts" this day on the American vaudeville stage are simply marvellous. And the end is not yet. When some particularly ambitious and intelligent trainer by and by appears before the public with an elephant who can take a piece of chalk and write words upon a blackboard, we will not be at all surprised. I am sure that it can be done, and in the near future will be done.

The most fascinating wild-animal sight of all India is a group of elephants at work on a busy day. Once upon a time (the time of my life!) it was my good luck to see, week after week, a lot of work elephants performing their daily tasks. Not only did I see them in the timber-forest and on the trail, but once I lived for about two weeks in a bamboo hut in a big camp of working elephants. The old white-bearded "elephant-doctor" was my best friend. Each morning the whole detachment (about thirty head) fell into line in front of the cook's hut to receive, each one, a huge ball of boiled rice and a small lump of horrid brown sugar. Then they were marched down to the little mountain stream and permitted to drink. After that, they broke up into detachments, and each one briskly marched away into the jungle to where teak logs had been cut, hewn, and made ready for dragging.

The business of the elephants was to drag those big square logs, each with a "drag hole" cut at one end, over the moist and slippery floor of the forest to the top of a two-thousand-foot slide. There the workmen start the

logs down the granite mountainside to the edge of the level plain below. I have seen some logging operations, but never anywhere else have I seen another trick turned like that.

In getting those logs in position at the top of the chute, the elephants knew as much about the business as the men. On account of the primitive manner of dragging, the elephants came into far closer touch with their mahouts than do elephants who drag by means of comfortable collars and traces. A big rope of soft bark was tied into the drag hole of a log, the elephant took the frayed-out other end between his molar teeth—crosswise, to bring all eight molars into action—and thus gripping the rope, with the head turned partly to one side, he heaved his great bulk forward, and the log had to follow or smash. But I never O.K.'d that method. It was unbusinesslike and unfair. It put a very improper strain on the neck vertebræ and muscles; and, besides, the elephant in the case could by no means exert all his potential strength.

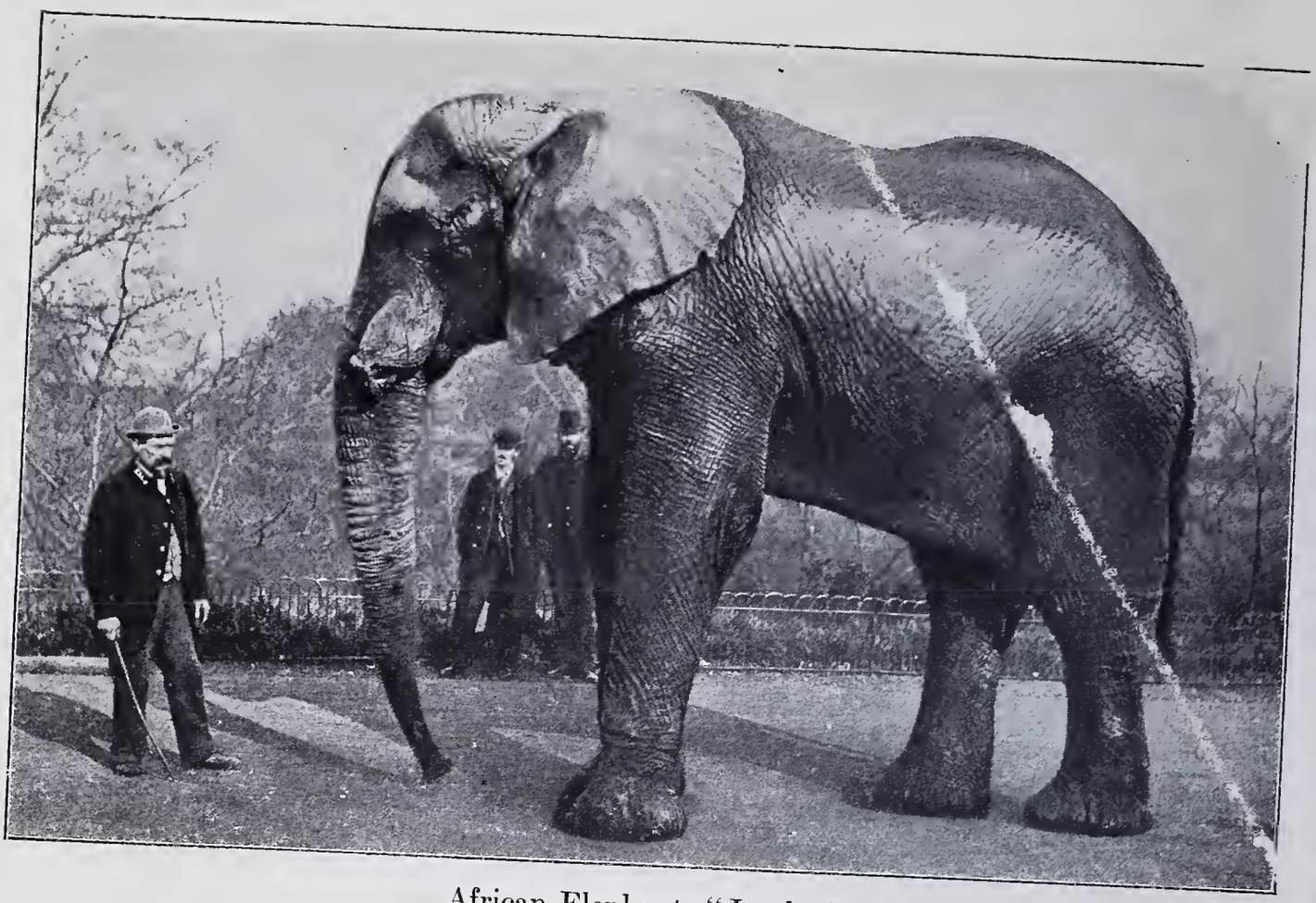
In the East Indies the work elephant and his mahout are just partners in the day's work. The wise animal kneels to receive his pad and his load; and he rarely kicks about the classification of the freight. It may be crates of live chickens, field artillery and ammunition; food, liquors, live sahibs and memsahibs, or dead tigers; it is all the same to him. He will even take on a howdah with a green sportsman in it, and go out to hunt tigers in grass seven feet high, at the imminent risk of being shot by his own bronco sportsman or some other one.

If it is your elephant's first tiger-hunt, and the first tiger put up is only wounded, and starts to climb up your elephant's trunk to reach both mahout and sportsman,

From a photograph by Johnston & Hoffman.

A Morning Inspection of Work Elephants.

When a hunt is officially arranged, a hundred or more tame elephants may be used to round up a herd of thirty to fifty wild ones.



African Elephant, "Jumbo."
Actual height at shoulders, 10 feet 9 inches (1883)

Gunda, the First Indian Elephant of the New York Zoological Park.

your elephant may lose his nerve and bolt for the rear; in which case that section of the hunt may terminate against a stout overhanging branch of an unlucky tree. The seasoned elephant, however, who has good courage and has hunted tigers before, is not stampeded by a furious tiger climbing up his head, and the hunter in the howdah then has a fair chance to shoot the tiger off his perch.

The achievements of actor-elephants on the stage and in the show-ring are well known. Some of them are marvellous exhibitions of keen and correct understanding, accurate memory, perfect obedience, and mechanical skill.

In our eighteen years of elephant maintenance and display in the New York Zoological Park, we have had few difficult cases. Gunda, a male Indian elephant who was born bad, grew up worse, and ended the worst of all elephants, is well known individually and by reputation to millions of people. For a time, while in his teens, he was amenable to reason, was ridden all about the park, and carried thousands of visitors on his back. But on reaching full maturity he became dangerous, and the last five years of his checkered life were devoted to efforts to kill certain marked victims.

When finally I sounded the depth of Gunda's unhappiness, and measured the length and breadth of his determination to "get" his keepers, Walter Thuman and I went out for a quiet walk in the park while Mr. Carl E. Akeley, the elephant collector and sculptor-taxidermist, neatly and skilfully put poor old Gunda out of the way.

Our female Indian elephant, Alice, is erratic and hysterical whenever she is taken outside of her private park, and her specialty is wildly bolting into buildings that were not built for her. For an elephant this is in bad form; and

once, when she bolted into the Reptile House, it jarred our nerves. Since that stirring event, wherein about eleven small snake cases were smashed, Alice has been officially under arrest and confined to her quarters. But she bears no malice, and seemingly has no thought of attacking any one.

A word in conclusion about the chance of the elephants of Africa to survive the present mad craze for the slaughter of big game.

Into the high, open, and healthful plateau regions of eastern Africa white settlers are going, intent upon making farms and homes. The colonial governments of Africa will not countenance interference with or injury to those pioneers by destructive wild elephants. As between elephants and settlers, the wild beasts will have to give way. But there should be no wild hysteria of elephant-killing because in a few places there is some excuse for it.

We hold that, in order to provide mounted specimens of elephants for museums the killing of a few elephants is justified. A sportsman when furnished with a permit to kill an elephant should be required to pledge himself to save its skin, skeleton, skull, or head to be mounted and placed on exhibition in a public museum.

We are assured that the Belgian Government is now considering the measures that should be taken to conserve and protect the valuable wild animals of its Congo Territory.

There is one danger of which all elephant-owning countries in Africa must beware. That is the owning and use of modern high-power rifles and fixed ammunition by natives. I speak of it here because of the new modern rifles recently obtained by the Arctic coast Eskimos, who, with

them, *already* have exterminated the muskox of the Canadian Barren Grounds, save an estimated one hundred or less.

A hundred years from now Africa will be swarming with white people, gridironed by railroads, crowded with automobiles, and dotted all over with cities and towns. Then there will be five million rifles and pump-guns in use, and one or two of the Africanders who have no commercial interests at stake will be regretfully writing about "Our Vanished Game."

XII

HOW WILD ANIMALS ACCEPT CAPTIVITY

Of all the wild animals seen in captivity, about ninety-eight per cent are captured in early life, when the units of resistance are small and few in a hill. They are caught before the normal spirit of self-reliance and bold resistance have developed.

Many persons sincerely believe that all wild animals in captivity "pine" for their native jungles; but this is not by any means the case with animals which are caught quite young, and are kept in comfortable quarters. Of course, any poor creature caged by a mean man in an evil way, in a small cage, is miserable; and it does pine hard for more room, good air, good light and decent society. If I had the power I would make short work of the cruelly small box-cages in which many wretched animals are kept.

There are just the same differences in the keeping of captive animals that there are in the keeping of wives and children; and I ask all real humanitarians not to lose sight of this evident fact.

"It is hard to teach an old dog new tricks," and it is hard for an independent and self-reliant adult wild animal of fixed habits and family responsibilities to accept sudden and violent capture, and enforced captivity in small quarters.

It rarely happens that such an animal can be furnished with large quarters, because of the character of the daily housekeeping which is necessary to a proper basis of sanitation and good health.

I think elephants are positively the only wild animals of considerable size which can be captured when adult and powerful, and so will settle down in captivity that they can live in a semifree state with safety for the men who need to work around them. It is only under the most exceptional circumstances that it is possible for an adult-caught polar, grizzly or black bear to be kept in a big, open-air cage, into which keepers must enter to do the daily cleaning. In all the years we have had Silver King no keeper ever has gone into his cage save after he had been enticed into his small feeding-cage and locked in.

Except in the case of elephants, reptiles and a few other species, it is not a good thing to capture adult wild animals to exhibit in captivity. They are not a good risk. They rarely turn out well; often they are very disappointing, and in some cases they become a nuisance.

I never have heard of an adult gorilla or chimpanzee having been captured alive and caged. Those redoubtable animals, of combined strength and agility, actually bid defiance to all animal men. So far as captures are concerned they are left severely alone, which is wise and commendable. I would rather try to catch forty lions than one adult gorilla or chimpanzee. The latter may be all right as long as they are left unmolested, but to bring one to bay and attempt its capture alive is to rouse a raging demon with the strength of a maniac and the teeth of a leopard.

I have seen one full-grown male orang-utan, of large size and broad cheek callosities, that I know was captured wild, only a few weeks before I saw it. The animal was at the country home of Mr. Whampoa of Singapore, and the sight of it well repaid the trouble of a visit. The

great beast was in a very good cage, in a fine garden, and being well cared for and immune from malicious annoyances, it had settled down to passive captivity in a way that betokened a good quality of intelligence.

In the New York Zoological Park we have had two adult orangs, a male and a female with a nice baby. The female was almost docile; and while the male was cross and dangerous, neither fought their cages nor spitefully resisted their surroundings.

The transition from dangerous apes to dangerous bears is easy. Take them pound for pound, our biggest bears are far less dangerous to our men than the adult apes. The bears are not so fearfully agile, nor so aggressive, nor so treacherous; and they are much more obedient to discipline.

Our worst bear case is Silver King, the huge male polar captured in the Kane Basin in 1910 when fully adult. Two polar bears were captured by Paul J. Rainey by lassoing them while they were swimming in the waters of Kane Basin, and the motor-driven whale-boat then towed them to the side of the ship where a donkey-engine hoisted the animals on board without any injury save to their feelings.

From the moment the noose of the lasso landed on his neck until he landed in his den in our place, with only one intermission he fought like a tiger, or worse. For a period on board the ship he agreed to an armistice, but the moment his cage was hoisted off the deck of the Steamship *Beothic* at New York he again became a raging demon. It was nothing but three pounds of chloroform, a big roll of cotton and a good blanket that kept him from escaping.

The housework of "Silver King" is accomplished by

Silver King, the Polar Bear of Kane Basin.
Caught When Fully Adult.

A Highly Intelligent Chimpanzee,
"Baldy," of New York.

Alaskan Brown Bear (*Ursus innuitus*). From the Kobuk River, N. W. Alaska.

Copyright by New York Zoological Society.

Alaskan Brown Bears.

enticing him with food into a small shifting cage and securely shutting him into it while the keepers do their work. The big Anticosti black bear was so amiable that he always permitted the keepers to enter his cage just as the bears do that have been reared in captivity.

Although Silver King occupies a truly ideal cage for a polar bear, with great space and freedom, a fine swimming-pool, a big sleeping-den and all that, in thirteen long years he never once has given up and accepted captivity. To the last he is and will be savage, dangerous, unreasonable and contrary. Just to spite us, he very rarely goes into his pool for a swim, even in the hottest weather, and in consequence his coat for half the time is soiled with dirt. In fact, as an exhibition animal, Silver King comes very near to being a failure.

I have seen several grizzly bears which had been caught when fully grown, and all of them had accepted captivity, and so far settled down that they were more or less satisfactory as exhibition animals. Two were in the Zoological Park at Washington, having been captured in the Yellowstone Park. A third one was held by its captor in durance most vile outside the New Orleans Exposition until it died in its pine-log cage.

Perhaps the greatest grizzly ever captured was "Monarch" of California, for several years successfully exhibited in the zoo at Golden Gate Park, San Francisco. That truly fine animal finally accepted captivity—for several years made the best of it—and lived out his allotment of years.

The most remarkable adult-captured wild animal that I ever knew this side of the elephant was the very big and handsome Anticosti Island black bear which was

caught for us in 1921 by Martin Zede, manager, and presented to us by Senator Gaston Menier of Paris, owner of Anticosti. That animal was caught in a comfortable travelling-cage set in the woods. He never showed the slightest anger or resentment over his capture, and he cheerfully ate out of Mr. Zede's hand six hours after his capture. He was shipped at once to New York, and down to the day of his lamented and wholly premature death in June, 1923, from pneumonia, he never was angry! His philosophic amiability remains to us an astounding phenomenon.

Among the big "cat animals" I have personally known three that were caught when full grown and caged. One was the lioness roped in British East Africa in 1910 by Buffalo Jones and his two western cowboys, tied to a tree, hauled into a travelling-cage, and transported to New York. When the lioness reached the New York zoo her nerves were wholly gone. She felt that she had no friends, and that every hand was against her. When we adjusted her cage to the door of her permanent home and opened both doors she refused to come out of the cage she called home. She seemed to feel that her last hour had come and she preferred to die where she was. We worked her patiently, and without force, and the men were more than two hours in persuading her to change quarters.

In her new home she was at first just as wild as when she roamed the East African veldt and lived on gnu and zebra, but she did not fight captivity, nor fret, nor visibly pine for freedom. She elected to lie in the farthest corner of her balcony, so that we saw only her head and face. For a year she would not come down in the daytime even for her food.

During the last half of her second year with us the lioness accepted us as friends, or at least passive enemies, and consented to come down to the main floor of her apartment, where the populace could see her.

But this did not last permanently. After three or four years of normal cage life, but without having shown any regard whatever for her keepers, she again elected to spend her days in that same right-hand, far-corner of her balcony. There she at last ended her days, after having lived with us thirteen years.

In 1907, when Buffalo Jones and Zane Grey went to the Kaibab Forest, north of the Grand Canyon of Arizona, Mr. Jones made a record-breaking catch of nine mountain lions, all alive and unhurt. At that time we had enough mountain lions and could not accept all of them, but the largest and finest adult male was shipped on to us for A. Phimister Proctor, the sculptor, to use as a model. One hot day about the end of August a big iron-barred cage arrived, with the mountain lion in it "dead." I rushed to the receiving platform and had the front of the cage turned toward the light.

"Too late! What a pity!"

And just then I plainly saw the lower jaw move a trifle, in a last faint gasp for life.

"Water!" I yelled. "Bring a pail of water—and a cup."

In about fifteen seconds I began to dash cupfuls of cold water into the face of the apparently dead animal. At once the half-open mouth filled, and the dry tongue feebly reached forward to lick the wetness from the lips. Next, we threw a whole pailful of water over the superheated animal, flooding the floor. Slowly and groggily the

poor creature pulled himself together and began to lap water from the floor.

I have seen thousands of thirsty animals drink, but never another as long as that one drank. It was good to look at. The poor creature had torn loose from its moorings the big metal camp-kettle which had been fastened in one corner of its box, chewed it up, and then the express messengers had nothing in which to give it a drink.

That animal accepted captivity without any fuss whatever—as nearly all pumas do—it lived long and it rendered good service, first to Mr. Proctor and art, and at last to education at the National Zoological Park.

Mr. Jones's puma-catching industry on the rim of the Grand Canyon was a great success, chiefly because of the philosophic minds of the parties of the second part. When a puma had been driven by the dogs into a pine tree Jones would climb up and with a long pole push the animal off its perch. Once on the ground, the dogs held the puma at bay until the cowboys could rope it. Then the animal was carefully stretched upon the ground and held there while Jones snipped off the business end of each claw with a pair of flat-nosed cutting-pliers, and put on the neck a leather collar and a chain.

After that each "lion" was chained to a tree all his own, and fed and tended until exportation. Col. Jones's photographs showed big "lions" sitting by their trees as serenely and nonchalantly as so many sanguine mastiff dogs.

Carl Hagenbeck sold to us (for $15,000) three of the five pigmy hippopotami which his hunter, Hans Schomburgk, caught in the interior of Liberia, West Africa, in 1912. Two of the three were fully grown males, with sharp and dangerous tusks. One of the male specimens

was bad-tempered, and more or less dangerous, and even after a lapse of eleven years his hatred of man has not cooled. This, however, is an individual trait only.

The temper of the other male is serene and sound, and in the many shiftings to which he is subjected he always does as he is bid, and makes no trouble. The female is a wise and good mother, with far more perfect maternal instinct than our chimpanzee, "Suzette," who does not know enough to suckle her own babies and actually starves them to death. (Yes, we *do* believe in birth control!) Our two normal pigmy hippos openly revel in their captivity, and pet pigs are no more grateful and comforting than they.

The perpetual philosophy of the adult, newly captured Indian elephant is one of the animal wonders of the world. When an elephant herd is first entrapped within the sapling stockade of a *keddah,* there is much rushing to and fro to escape, but as a rule none of the big male captives seems to know that by applying his weight to it, and sticking to it for half an hour, he could push down the best stockade ever built in a jungle. Now, if each captive herd could only secure the services of our African elephant battering-ram—Khartoum! He could be positively guaranteed to demolish any wooden stockade in just five minutes by the clock—no cure, no pay.

After a wild elephant has struggled for about five hours against four or five heavy tame elephants and a dozen mahouts and noosers with big, soft ropes to snare and tie his feet and legs, he begins to reason along a new line. He finds that treacherous tamed elephants pitted against him, together with the ropes and intelligence of men, are too much for his weight and his tusks to combat, and he surrenders.

From that moment his future is merely a matter of training. From that minute he plays the white man's game, and he does it with astounding cheerfulness and obedience. The like of it is not found in any other large animal living, so far as we know.

Sometimes within a week after capture a wild elephant can be ridden, and sometimes after six weeks of training the new captive is ready to go to work. Other persons may call this anything they think best, but I call it elephant philosophy and independent reasoning from cause to effect.

Although we now know very well, from the successful work at Api of the officers of the Belgian Congo State, that young African elephants can be very successfully and profitably trained to service, we do not yet know whether the Congo adult animals are as philosophic about captivity as are their wild brothers of India. This is due to the fact that up to date the Belgians have no means by which to capture and at once control fully adult animals. From all developments up to date, we feel safe in believing that adult African elephants have just as much intelligence as their relatives in India, and that adult captives will accept captivity and service as quickly and effectively as the members of the Indian species.

According to the official report of Monsieur Laplume, as quoted by the famous English explorer, T. Alexander Barns, even the young African elephants captured by the Belgian Congo elephant-establishments usually have made a great amount of resistance, and have caused trouble of many kinds. They balk, fight, break loose, and what is still worse, sometimes lie right down *and die,* in quick time, through what looks like sheer perversity.

And this reminds me once more of my dear old friend,

Buffalo Jones, the mildest-mannered gentleman who ever swung a rope over a wild animal. It is a curious fact that for the ten years following 1889, Col. Jones's exploits in catching buffaloes and other animals were so extraordinary that thousands of Western men disbelieved them, and said confidentially, "Oh, Jones is a faker."

In the spring of 1889 Buffalo Jones took Lee Howard and William Terrill, two expert and daring cowboys, and with an adequate outfit of six riding-horses and two mule-teams, went from Garden City, Kansas, one hundred and fifty-five miles to the headwaters of the North Canadian River in the Panhandle of Texas. In that bald plain there were then hiding precariously in the shallow draws about seventy-five head of buffalo, positively the last remaining remnant of the 2,000,000 of the great southern herd. They were usually found in groups of less than six—as if they realized that scattering promoted safety.

Several young calves were caught and cared for, and then Jones and his assistant dare-devils aspired to the capture of full-grown and sometimes savage cows. At this stage of that mad enterprise a cowboy named De Cardova entered. A cow was captured, and after a fierce hand-to-rope struggle, was tied, and then regularly hobbled. But wild nature took her own course. The cow refused to give up. She fought against captivity so fiercely that she soon died of "a broken heart."

A little later on, a large herd was discovered, consisting of twenty-one cow buffaloes and one lame bull which presently said "King's X," and dropped out of the proceedings. The cowboys chased those cows steadily for forty-two days, while Jones rushed off to Garden City and rushed back again, driving twenty-five of his domesticated

buffaloes to use as a lure in capturing the entire wild herd. By that time the wild ones were dead-tired, foot-sore and thin from constant travelling round and round over their last range.

The two herds were mixed, but when it came to drawing the mixture from off that range, the wild ones wouldn't stand for it. They cut themselves out, regardless of men, horses and tame bisons, and fled back to their own country. Then Col. Jones resolved to capture a lot of cows, hobble them, and compel them to go along homeward with the tame animals.

Those dare-devils actually captured with their lassos, on the open prairie, eleven full-grown cow bisons, put hobbles on them, and attempted to drive them. The bisons fought their captors as long as they lived. Mr. Jones says:

"One-half of them died within twenty-four hours after being hobbled. They usually took fits (really convulsions), stiffened themselves, then dropped dead, apparently preferring death to captivity. It appeared to me they had the power to abstain from breathing. We worried along with the remainder, but they eventually died before arriving at my ranch in Kansas. We were fortunate enough to bring seven calves in safely, all of which lived, and helped materially to swell the herd."

That is the only instance of which I ever hard wherein any mortal man was bold enough to attempt to capture in the open a wild adult bison or buffalo and reduce it to captivity. In its turn it reminds me of the now celebrated case of the valley elk bull of Buttonwillow, California, which was captured by cowboys in November, 1904, and shipped to the Sequoia National Park, for colonization there.

The elk, with his horns on, flatly refused to be driven to the corral for capture; and so he was roped, thrown, hog-tied, and ignominiously hauled six miles to the loading place at the railway station. A terrific fight ensued in getting him into a car, in the course of which his horns were sawed off.

After a short railway journey the battling elk bull was forced into a crate and hauled a two days' journey to the park. The animal kicked his crate continuously for forty-eight hours. At the end of that time he was released, bruised and battered in body, and broken in spirit. With head bent to one side, back curved, one ear up and the other down, he slowly and painfully waded across the little river beside which he was set free, lay down on the farther side from his captors, and was there found dead the next morning. Apparently he died of a combination of exhaustion and broken heart.

Adult mountain-sheep and white goats are more philosophical. In the Rocky Mountain Park at Banff, Alberta, British Columbia, many mountain-sheep, rams as well as ewes, have been caught fully grown, crated after a reasonable corral interval, and quite successfully shipped to New York and Washington.

The six fine animals which were sent to the New York Zoological Park were timid, and rather nervous about our crowd of visitors, but aside from seeking concealment when alarmed they always behaved very well. They never registered rage against confinement, nor insanely attacked their fences in efforts to break out regardless of the consequences to themselves.

Will Frakes of Southern California captured a number of adult Nelson mountain-sheep in the Avawatz Moun-

tains, near Death Valley. His sheep showed clear reasoning powers and good judgment. They were quick to learn that they had been mastered,and they accepted their captor's terms with commendable promptness.

"A sheep's token of surrender," says Mr. Frakes, "is to lie down and lie still. Once he 'possums, no matter what you do, or how badly you may hurt him, he will never flinch."

In referring to his finest ram, "Stonewall Jackson," Mr. Frakes said: "But for all his proud and defiant bearing he has always been a good sheep, and never tried to fight me. Still, he can hit quick and hard when he wants to, and I have to keep him tied up all the time to keep him from killing the other bucks."

Mountain goats that have been captured when adult are very sensible about accepting captivity, and after their first grand struggle has been defeated they give up and in due course of time accept the inevitable and settle down. There is one material point, however, in which they often are sadly lacking. They are easily irritated by their herd mates, and when not confined separately often give the one impatient but fatal thrust into the lungs or abdomen of the offending party, which means quick death.

For universal good-sense in accepting captivity without frantic fighting and death from broken hearts commend me to the reptiles, one and all. Of course they lack the elaborate assortments of supersensitive nerves possessed by some of the warm-blooded mammals, but for all that their philosophy is universal.

The big alligator or crocodile when newly caught is, of course, savage and dangerous, but he is always wise enough to eat when he is hungry, to refrain from fighting his cage, and to refrain from breaking his heart.

This is also true of the largest and the most savage pythons, rattle-snakes, and cobras. The pythons settle down to captivity with commendable promptness and judgment. They practically never attack each other and they are far from being hopelessly savage toward their keepers.

On the other hand, the cobras are naturally vicious and dangerous, and this spirit never leaves them—save when the so-called Hindu "snake-charmers" pull out all their teeth and otherwise maltreat them.

Every tortoise, great or small, accepts captivity as if he loved it and had been longing for it to come along. The snapping-turtles, however, are different. They are suspicious, retiring, and dangerous if they have opportunities to bite.

I trust I have said enough to convince every amateur "animal man" of the positive inadvisability of capturing adult wild animals for zoological park purposes. They are unwelcome gifts, uncomfortable tenants, and all-around bad risks. Their wild ideas of self-preservation and independent subsistence naturally and inevitably unfit them for the artificial life of public exhibits.

It is unfair, and also quite wrong, to bring into captivity an animal that fights against it until it dies. A humane keeper deplores the sight and the company of an animal that really pines for the wild home from which it was taken by force. With the cage-reared young animal it is very different.

"He that is robbed, not wanting what is stolen,
Tell him not of it, and he is not robbed at all."

XIII

THE GREAT BROWN BEARS OF ALASKA

The stupidity of man, the All-Wise, in becoming acquainted with large and very striking new species of wild animals, is both wonderful and humiliating. Consider the cases of the three giraffes of British East Africa, the okapi, the white mountain-sheep of Alaska, and the Alaskan brown bears.

We acquired Alaska in 1871, and with it the most magnificent stock of bears possessed by any one country on the round earth. And yet, it is a fact that it was not until 1896 that specimens were collected which enabled Doctor C. Hart Merriam to introduce to the world the largest bears, and the largest carnivorous animals, now inhabiting the earth.

Nor is this bigness and general remarkability confined to a single species. There are several species; and although several pamphlets and many magazine articles have been written about them, and about fifteen specimens have been exhibited in captivity in New York and Washington, the average American citizen has not yet had an opportunity to grasp them and hold on. As a rule, when we try to talk to a stranger about these animals, we are met by a blank look of inquiry.

The brown bears of Alaska form a group quite apart from other bears, and entirely distinct from the grizzlies, blacks and polar. They are distinguished by their enormous size, brown color, massive build, huge heads, high shoulders, and short but very thick claws. An "old he-

one," with a skull 19 inches long, will weigh anything between 1,000 and 1,200 pounds.

It was the species inhabiting Kadiak Island that first and most effectively came into public notice. Finding it, even as late as 1896, without a place in the system of nature, Doctor Merriam described it, and named it in honor of a Russian naturalist named Middendorff—who should be celebrated because of the great number of Alaskan mammals that he did *not* discover! It seems odd, does it not, that for a century or more the Russian governors, priests, traders, trappers and sailormen, one and all, overlooked the greatest bears on earth. It is still more odd, however, that from 1871 to 1896 many Americans did likewise.

Briefly stated, we may say that the Alaskan brown bears are most numerous in the coastal region of Alaska from Admiralty Island (near Sitka), swinging around to Bristol Bay, skipping the barren lower valleys of the Kuskokwim and Yukon Rivers, and reappearing northeast of Nome, on the Kobuk River. Its known range embraces the Kadiak and Afognak Islands and the mainland of the Alaska Peninsula. Just how far the brown bears extend into the interior regions of Alaska is at present unknown.

There rises before my mental vision a picture of the saving of my reputation by a brown-bear cub.

In 1900 I wrought out as best I could a map intended to show the distribution of the brown bears of Alaska, as a group. It was a ticklish job, because of the scarcity of definite information and the abundance of critics. However, as in many such cases, I did my best and accepted the risks. On the strength of the reports of skins of a "red bear" flowing down the Yukon Valley to the

traders at St. Michael, I made bold to run the alleged "range" up to the lower Yukon River.

All went well until 1912, when, without warning, two of my zoological friends (of critical disposition) jumped upon my map, and proceeded to do it violence. One of them said:

"Your brown-bear map is wrong. Our friend Dash says that the brown bears inhabit the coast region only, and that none range up to the Yukon. Your map must be changed."

Crestfallen and crushed, but unconvinced, I humbly said:

"I will send you and Dash a blank map of Alaska. Then you two mark out the range that you think is right, and I will put it up."

Just one week from that day, there rolled into the Zoological Park a lusty Alaskan brown-bear cub nine months old, personally conducted by the selfsame agent of the United States Bureau of Education who had seen the dead mother weighed in the flesh at Nome, and at the same time had bought her living cub from the bear hunter who achieved the two. The mother weighed 1,100 pounds, and her flesh sold for 15 cents per pound. Both mother and cub came from the *Kobuk River,* 300 miles northeast of Nome, and about 300 miles southwest of Point Barrow, on the Arctic Ocean!

My map was not only saved intact, but it was extended northward far, far beyond the Yukon River. We bought that cub, and he lived and throve. Doctor Merriam says that his name is *Ursus innuitus.* No one can say what the uncertain future may bring forth in Alaskan brown bears, but for the present we may put him down as Farthest North.

The Alaskan brown bears that live within reach of the salmon streams of Alaska are confirmed fish-eaters. In spring and summer, when the salmon enter the rivers from the sea, and swim upward to the highest available gravel-beds to spawn, the bears come down from their mountain homes to catch salmon with the hooks that nature gave them.

And these bears have still another strange trait in feeding. When conditions are quite right for it, they devour quantities of tender green grass in the marshes of the low-lying valleys that border the salmon streams. I do not know of any other wild bear save the grizzly that ever feeds upon grass, even when it is youngest and tenderest, but in captivity almost any bear may be tempted to eat a little fresh and tender bluegrass.

The big brown bears are truly mountain bears, and they are most numerous in the high, treeless ranges that rise so quickly and so boldly along the Alaskan coast. To hunt them successfully in their high mountain fastnesses is a well-nigh impossible task. The white hunter achieves success chiefly by strategy. His native guide knows the lay of the land and the habits of the bears, and the real effort is to ambush or stalk the bear on his feeding grounds, or on his way to them. Owing to the treeless and wide-open character of the mountain-sides, a big bear is visible a long way, and the hunt is of necessity carried out on a grand scale.

Many thrilling stories of bear hunting have come out of Alaska, and a few that are harrowing. The native bear hunters firmly believe—and they act upon it—that a well-delivered yell, of raucous quality and enormous volume, will cause a charging bear to stop short and stand erect

on his hind legs while he takes a look. An action of that kind enables even an unskilled hunter to fire a fatal shot.

The white hunter, armed with a thoroughly up-to-date, high-power repeating rifle, nearly always gets his bear, and without accident. Against such a combination of native strategy, deadly weapon and white-man accuracy—the wild beast can hardly escape. But native bear hunters armed with imperfect weapons do not always come off so well.

About eight years ago there occurred a bear "accident" in Alaska that stands almost without a parallel, so far as bear records are concerned. A captain of a small sea-going vessel went back into some coastal mountains alone, for a day's hunting. Very unexpectedly he was attacked by a large bear, which in a trice completely mastered him. Then the bear proceeded to bite his flesh, in a systematic manner. Without breaking his bones, and without tearing open an artery, the bear mouthed him from head to foot, deliberately, and at horrible leisure.

Finally the bear tired of the sport and left without having killed his victim.

The unfortunate captain was about seven miles from the coast, and he knew that he must work himself within reach of the settlement, or die. Being utterly unable to walk, he started to crawl, on his hands and knees, and crawled, hour after hour, until at last he covered about five miles, and came within reach of human help. As quickly as it could be done, he was taken to the nearest hospital, and although his condition seemed hopeless, eventually he recovered from all his wounds.

At this moment a bear controversy is on between certain of the people of Alaska and the new Alaskan Game

Commission. The cattle-raisers of Kadiak Island (and possibly there are others) pointedly claim that the big brown bears are killing their cattle to a serious extent, and interfering with their industry. For these two reasons they demand that the protective laws be taken off the bears, in order that the bears may be killed by fur hunters for their hides, to the incidental relief of the cattle industry.

Under the terms of the present Alaskan game act, the new Game Commissioners are given the power to protect, for any length of time, any species of wild mammal or bird that seems to be in danger of extermination. Under the former act, the Government decided that it was not justified in permitting hide hunters to exterminate the finest carnivorous mammals of the whole Western Hemisphere for hides worth $25 each, or even less. The Government held that sportsmen have some rights in the taking of the remaining big game of North America, and therefore the hide hunters were forbidden to kill unrestrictedly the Alaskan brown bear for its skin. The extinction of the American bison in its wild state, by hide hunters, was pointed out as an episode which must not be re-enacted.

From this decision the fur hunters and the cattle-raisers of Alaska vigorously dissented. That the actual cattle-raisers are entitled to adequate relief from bear depredations, all fair-minded men will agree; but we can not believe that in order to protect that very young infant-industry it is necessary to remove protection from all the brown bears in Alaska, and permit the hide hunters to exterminate them—as they easily could and would do in a short time.

Of all the big and essentially dangerous wild beasts

which I know personally, the Alaskan brown bear is the most amiable and good-natured. Give him comfortable quarters, sufficient room for exercise, an ever-ready bathing-pool, a dry den and sufficient food for his hunger, and you will have a model bear. The idea that an animal thus established is a "miserable prisoner" and a "suffering captive" is all bosh! I mention it because just now a slight effort is being made, by a few persons of feeble intellect, to discredit all zoological parks.

I wish I had in my daily life one-half as much fun, and as little worry of mind, as our bears have in theirs. The only exceptions are the two polars that were caught when fully adult. I do not believe in catching and caging full-grown animals; for some of them never become reconciled to captivity. Fortunately such captures are very, very rare,—not more than five per cent of the whole number of zoo animals.

Except the two polars, our bears are not only contented in their captivity, but they are satisfied and happy. They wrestle, and run, and play until they grow so heavy that antics are no longer possible; but even then the evidences of satisfaction with life are unmistakable.

At our Bear Dens—which have held at one time seventeen species—our star is old *Ivan,* the largest carnivorous animal in captivity. He was caught by Belmore Browne, the artist-explorer of Mount McKinley, at Port Moeller Bay, east coast of the Alaska Peninsula, on May 24, 1903. He shot Ivan's mother and carried out her cub in his blanket. Now Ivan stands about fifty-one inches at the shoulders, he weighs about 1,200 pounds, and in his winter suit of long, wavy, yellowish-brown hair he is as handsome a bear as we ever knew. Even the most indiffer-

ent visitor notes that his bulk is enormous, and that his proportions make him a model for the artist or sculptor. The commanding portrait of him that Carl Rungius recently painted for the Zoological Society is a masterpiece, and well worthy of the finest bear in captivity.

Old Ivan is as good-natured and reliable as he is big and handsome. If he has a mean trait, we do not know it. It would not be wise for a keeper to come within his grasping power, because with the kindest intentions in the world he would want to play with a man in a way that could easily prove fatal to the party of the second part.

Ivan has for a cage-mate and companion a female bald-faced grizzly bear that is about one-half his size and strength; but never does Ivan abuse her, or rob her of her food. He plays fair. Each day the two bear keepers, armed with a broom, pail, shovel and an assortment of life-preserving pick-handles, enter Ivan's cage to do the housework. As the lock rattles, Ivan comes to attention. As the first keeper steps in he says, firmly:

"Go on up, Ivan. Get out of here!"

Straightway the great beast rises and ambles off to the rear, and with striking play of mighty limbs and paws scrambles up the rocks to the level top of his sleeping-dens. That is *his place* when the cage below is being cleaned, and he knows it well. From that high point he is merely an interested but passive spectator of the domestic drama going on below. If he grows weary and makes a move to descend too soon, a keeper sternly says, "Ivan!" and down he sits again.

Once we saw Ivan fight, with a bear of his own size (at that time). It was a fearsome sight. It came about through a mix-up of cage-mates. I cannot recall why a

change was made, but at all events the female cage-mate of Admiral—another big Alaskan brown bear abiding in the adjoining cage—was temporarily shifted from him into Ivan's den.

Admiral felt that that was not a square deal and it made him furious. At once he set to work to tear his way through the steel partition and get into Ivan's cage. I reached the scene while he was in the very act of finishing the job.

The partition was made of flat steel bars, woven closely together in a basket pattern, and set into heavy steel frames that were bolted into place. The ends of the flat bars were fastened by bending them over while hot; and everybody was quite sure that those panels were strong enough to hold elephants.

Admiral went to work with his great strength and his enormous claws to pull one of those woven bar panels out of its frame, and thus make a hole in the partition that would let him through. It seems impossible; *but he did it!* He did what a steam roller could not have done. I saw him finish tearing that steel basket work out of its frame, smash it down and rush over it through the opening and into the next den.

And then in an instant Admiral and Ivan were in combat.

At that time those two bears were of the same size and weight, and evenly matched. They fought strictly head-to-head, and mouth-to-mouth. Not once did either of the fighters swerve by a foot and expose his body to attack. Round and round they raged, and the female grizzly shrank off in a corner, terrified. Presently the two fighters

reared on their hind legs, each holding the other by a cheek, and in silence they waltzed and chewed.

And then the keepers had their chance. Carrying their arms full of hickory pick-handles, each one weighing about five pounds, they slipped in at the front gate, and took positions. They yelled at those bears as if they meant to tear them to pieces, and they slammed those pick-handles into them until they won. The hickory hurricane was too much to endure, and the bears let go and fell apart. Then all attention—and pick-handles—was concentrated on Admiral, who soon retired through the hole he had made into his own den; and the fight was over.

All the Alaskan brown bears look very much alike. To be more exact, they strongly show the distinguishing characteristics of their group. Some are a light brown, some are dark brown, and some have dark legs and light bodies. If I should try to name even the best known species, and give their characteristics, no one would remember them for two hours. It is not amiss, however, to give here the names and places of the species that are at this moment living in our Zoological Park collection; and in doing so I will begin with the most southerly species we have, and work northward:

Admiralty Bear, *Ursus eulophus,* Admiralty Island.
Yakutat Bear, *Ursus dalli,* Yakutat Bay.
Kadiak Bear, *Ursus middendorffi,* Kadiak Island.
Peninsula Bear, *Ursus dalli gyas,* Alaska Peninsula.
Kobuk Bear, *Ursus innuitus,* Kobuk River.

Last year a startling thing happened. For a full quarter of a century, Doctor Merriam has been collecting bear-

skulls and studying North American bears. And then, all of a sudden, out came from him an innocent-looking little pamphlet describing and naming *eighty-six species* of *Alaskan brown bears and grizzly bears!* And Doctor Merriam declares that the skulls before him left him nothing else to do.

XIV

THE MOUNTAIN GOAT AT HOME

I love a ledge across a cliff, a restful mountain wall;
To me no precipice is steep, no mountain peak seems tall.
Upon the ledge I tread secure, no foot dares follow me,
For I am master of the crags, and march above the scree.
—*"The Cragmaster."*

When we speak of the "home" of any wild animal species, we mean the place where it is most thoroughly at home, where it is found in abundance, where it attains its maximum size and horn development, and where it lives its normal life. Just like men, wild animals have their centres of population. On the map, the white mountain goat spreads from northwestern Montana and northeastern Washington to the head of Cook Inlet, Alaska, and eastward to the Continental Divide.

I am one of the very few men whom fortune has permitted to visit the great headquarters of Oreamnos, and see nearly 200 Billies, Nannies and kids in less than a month. In September, 1905, I went with my good friend John M. Phillips of Pittsburgh to the Elk River Mountains of southeastern British Columbia, where goats ran wild all over the place.

Really, now, it is a great thing to go to the headquarters of any important wild animal species, and find hundreds of them in their most picturesque haunts. Scenically that country between the Elk and the Bull rivers is a dream; and while thrillingly bold and picturesque, it is not an unreasonable or impossible region to work in and get through.

As we left the Elk River and headed our toiling pack-train up Goat Creek to climb to the summits, "Grizzly" Smith said with reckless confidence:

"Now, to-morrow night we will camp *right among the goats!*"

In the evening of that to-morrow we camped on a narrow goat highway running between a low peak and a high one; and while the last tent pegs were being driven, and the supper was going on the fire, three live Rocky Mountain goats wildly stampeded through our camp. They ran within six feet of the camp-fire, and we admiringly let them go.

During the twenty-four days immediately following that one we saw 237 goats. Our hunting licenses permitted us to take ten specimens, but we took only six. We were much more interested in studying those goats at home than in killing them, but I doubt whether any sportsman ever had goat opportunities greater than ours.

To begin with, those goats had not been harassed and shot up by sportsmen, or Indians, and they could look upon men without becoming panic-stricken. By carefully avoiding all hullabaloo, and doing no unnecessary shooting, we alarmed these herds very little. From their dizzy heights, those old bearded Billies looked down upon us as if we were so many curious insects. For example, the big Billy that Mr. Phillips photographed so handsomely hung out on his cliff above our camp for two days, watching the daily wood-chopping and cooking of our valiant cook, literally hour by hour.

The stage setting of those mountain goat movies, with real goats and men, was truly ideal. We were on the summit of the Elk River Mountains, at an elevation of

about 7,000 feet, negotiating valleys, peaks and slopes in bewildering succession. Our pack-train could travel only in the V-shaped valleys that ran between the mountain ridges, but as hunters we climbed everywhere. Fortunately, there were enough reasonable slopes where a fellow could go hunting without risking his neck at every step. All the other members of the party were tough and well-seasoned mountaineers, and the New York tenderfoot takes to himself considerable credit that he worried through his share of the activities without any broken bones or other compromising accidents.

It was in September. The weather was glorious, the air was clear and sparkling, the autumn vegetation was at its finest stage and the wild creatures were certainly making the most of it. The goats and mountain-sheep were doing their best to mow the cloud-land meadows. The pika—little haymaker of the slide-rock—was busily cutting and *drying in the sun* his winter's store of alpine plants, and the grizzly bears were gathering huckleberries for conversion into good bear-oil.

On gray days, after rainy weather, the colors of the mountains were most intense and most beautiful. Each element, of cliff, slide-rock, evergreen forest, meadow and shola contributed its own special color to that wonderful mountain cyclorama of grays, greens, browns and purples.

No wonder the goats, sheep, elk, deer, bear, martens and wolverines all love that summit country.

Toil to the top of cloud-kissed peak,
And see vast seas of mountains roll.
Because of smallness of the soul.
Then, feel great things thou canst not speak.

When not harried and shot to pieces in his habitats, white mountain goats prefer to go in herds of from six to twenty individuals; but solitary specimens or wandering pairs are common. In altitude they are at home anywhere from tide-water up to 9,000 feet, both in thin timber, at timber-line, and above the limit of trees where the rocks are bare. Their ideal and best-loved haunts are at timber-line, and from a thousand feet below to a thousand feet above. In that memorable September of 1905, all save a few of the goats that we saw were above timber-line. There, goats are visible at a distance of half a mile, and under some conditions much more than that. Usually, however, we came upon our goats at rather close range. Usually, we climbed up to them; but in some cases we met them on a level and parted on the square.

In that clean limestone country, containing no red or black earth, the goats were pure white—almost "as white as snow." The first two old Billies that we collected seemed to me brilliantly white, as white and fluffy in pelage as cotton. This is the first thing that strongly impresses one who sees wild goats for the first time. In countries where there is much red earth or black earth, it is said that individuals sometimes are pale red, or dull black, as the case may be. Mr. Phillips tells of a black goat that he saw, and of a blue one that for a few hours greatly excited one of his hunting companions.

One of the first new facts that we learned from the mountain goat at home concerned his temperament. Instead of being a nervous or wildly hysterical creature like a deer, which when cornered will instantly leap over a precipice to certain death, the goat believes in the survival of the fittest. Life on the summits amid narrow ledges,

abysmal heights, snow, ice and avalanches has taught him the value of calm judgment and sober second thought. When he is brought to bay on a ledge, by men or dogs, instead of leaping off to his death he stands fast, faces his nearest enemy with a pair of dangerous horns, as sharp as skewers, and says:

"Well, it's your move! What are you going to do next?"

This calm attitude betokens a philosophic mind and steady courage. But at the crisis the goat can fight, and fight fiercely, as many foes have found to their cost. When attacking, the goat lowers his head until his chin almost touches the ground, plunges forward and at the right instant gives a fierce sideswipe upward with his horns, to puncture the vitals of his enemy where they are unprotected. And man or beast may well beware that thrust.

Mr. A. B. Fenwick related to me the particulars of a battle of two Indians, fifteen dogs and two horses with a Billy goat that had wandered out upon Joseph's Prairie, where Cranbrook, British Columbia, now stands. The Indians thought that with their horses and dogs (but no guns) they could capture the goat alive. The goat thought otherwise. "A little later a squaw saw that they were having a bad mix-up, and ran out to the Indians with a rifle. One of them shot the goat. All but two of the dogs were killed on the spot, or died very shortly. It was with the greatest difficulty that the Indians saved their horses from getting punctured by those terrible little horns."

It is on record that a full-grown grizzly bear was killed by a full-grown Billy goat while the bear was killing him. The dead bodies of the two were found only a few yards apart.

So you see, although the goat is deliberate in thought and in action, and wise in self-preservation, when the time comes to fight he is right on the job.

To me the most wonderful thing about the mountain goat is his mind. He is so calm and self-confident, so level-headed and sure-footed, that often and often he marches and climbs where no other four-footed animal of North America dares to follow him. I never got over my original amazement and admiration of his summit work.

Early in our studies of white goats in that goat paradise we were treated to an exhibition of climbing that opened our eyes. As we were passing across a tiny goat-pasture at the foot of a rock precipice, we surprised a party of four goats on the side of the wall, about 100 feet up. We halted, to see what they would do. The face of the rock wall was reasonably rough, but it could not have been more than ten degrees from being perpendicular.

Two goats stood safely upon the summit, looking down on their entrapped comrades. The unlucky four could have been shot as easily as picking grapes; but it is not all of goat hunting to *kill* goats!

Finding that they were not being shot at, the four goats started to get away from us by climbing straight up the face of that precipice! For ten minutes we watched an amazing exhibition. Each goat chose an independent course, reached up with his front feet for a foothold, then by sheer muscular strength lifted his heavy body up the three or four feet to be gained. Often side-stepping was necessary to find a new foothold; but there were no slips, and never once a turning back.

They climbed in that way about 200 feet while we watched them, then reached easy going, and quickly

disappeared over the summit. We hunters all agreed that no mountain-sheep could make a climb like that; but of course we don't really *know*.

Several times we saw goats serenely promenade across the faces of perpendicular cliffs of bare rock so smooth that no sign of a ledge or path was visible to us, even with our glasses. In every such case it looks as if the animal were walking on the air. The feet are planted with great precision and firmness, and this imparts to the animal a stiff gait, and the general appearance of a mechanical toy in motion.

The mountain goat is equally at home on rock, ice, snow or meadow, and it lives in bands of two to twenty. Its big black hoofs have chisel edges for ice and a centre of rubber cushion for slippery rock. In steep climbing the front of the hoof digs in like a garden trowel, and in going down steep places the rear dew-daws make wonderfully effective brakes. The heavy coat of fine and dense white wool is impervious to dry cold, but the wet and cold rains of New York winters quickly put mountain goats down and out. In the East they must be sheltered from all cold rains, or they contract pneumonia and die. Of dry cold they can endure any amount.

In the matter of food, we must say that the goat is herbivorous, and explain that it feeds on a great variety of mountain plants, according to season. On the summits they find very little real grass, but they find pulsatilla and other queer pasture plants that are literally "just as good." In the spring they feed on the wild onions that grow abundantly in their home pastures, which imparts to their flesh a strong onion flavor.

Goats are numerous in British Columbia, widely dis-

tributed, and in the huge new game sanctuaries of that province and Alberta that have been created to preserve the goats, sheep, elk, and deer and bear, the species is sure to be preserved from extinction. The whole region in which "Grizzly" Smith and the two Norboes guided Mr. Phillips and his friends from 1904 to 1907 now is a preserve in which sheep, elk, moose, and goats have increased enormously.

The greatest feat in goat hunting of which I know was that of Mr. John M. Phillips in photographing on the face of a precipice a fine, big Billy goat, several times over, at a distance of from five to eight feet! The results have been given to the world in our book *Camp-Fires in the Canadian Rockies.* The goat had been living alone, high above our camp, for several days, and at last the day came that Mr. Phillips decided to take his picture.

Accordingly, John M., Mack Norboe and Dog Kaiser climbed up to the goat, and after some very hot work they cornered him on a narrow ledge, from which the only escape was suicide by jumping off. The goat stood fast, snorted, stamped, gritted his teeth, and dared the camera man to shoot.

Hanging on by one hand and one foot, the reckless camera man rested his camera on his free knee, worked it with his free hand, and in the course of half an hour got half a dozen surpassing pictures, at very close range. I fancy that never before or since that day was a crag-climbing animal thus cornered at eight feet distance and photographed large. What is more, Mr. Phillips never will do the like again. He is married now, and has Boy Scouts in his family to hold him back from all such hair-raising adventures as that was.

XV

THE CARIBOU POPULATION

WRITING about the caribou is quite like writing of the aeroplane. There are so many of them, big and little, that we cannot get on without recognizing the various species and asking the reader to help put them in their respective places.

I ask my reader to open the windows of his mind, summon all his powers of imagination and prepare to see in his mind's eye an array of caribou species that covers the upper third of the vast continent of North America. The caribou country stretches from northern Greenland to the west coast of British Columbia and the Alaska Peninsula, and from Ellesmere Land and Point Barrow to northern Idaho and Newfoundland. It is only the bears of North America that cover a wider range than that.

This vast territorial representation of caribou is divided among ten well-defined species. The reader may never again have an opportunity so good as this for becoming acquainted with a part of the continental fauna little known and but dimly comprehended. Therefore, let us gird up our minds for a serious effort to achieve some caribou lore that will put these millions of wild wanderers fully on the map.

It looks like a fact that all our caribou species have come from the descendants of the Asiatic reindeer that pluckily picked their way across the great land bridge that once spanned Bering Strait and began their wanderings in northwestern Alaska. It is mighty queer, how-

ever, that to-day Europe and Asia have no caribou and only the parent species of reindeer, whereas we have a wonderfully fine array of caribou species, great and small. The explanation of this curious condition has not even yet been discovered.

The species of caribou in and nearest to Alaska have antlers most like those of the Old World reindeer, but from them the variations are many and marked. In anatomical structure all the caribou are solid-horned deer with lofty, flattened and many-branched antlers. This puts them one and all fixedly into the great Deer Family. Like all other members of that family, they shed their antlers, and completely renew them, every year. This is attended to in the interval between April and September. The caribou has a large, wide, spreading hoof, which acts as a snowshoe in winter travel and also is good on boggy ground.

The winter hair of a caribou is long, even and very dense, and the nap of it is so tightly packed together that it is virtually wind-proof. When underneath that and the caribou's skin Nature spreads a one-inch layer of solid fat the result is a combination quite impervious to cold. No wonder the Indians and the Eskimos of the Far North make coats, breeches and robes of caribou skins for warmth in winter; and it is fortunate for them that this wonderful cold-proof combination is exceedingly light in weight.

Of course, the flesh of the caribou is excellent food. In times of plenty carcasses are kept by immersing them, through holes cut in the ice of lakes and rivers, until the arrival of the day of scarcity when even water-soaked meat is better than none. In times of scarcity every particle of the caribou is eaten that the human being can chew. The

sinews make sewing thread; the skin yields clothing; and only the horns and the hoofs are thrown into the discard. Many a white man strongly bitten by the bug of arctic exploration has learned to eat frozen entrails of caribou with blizzard sauce.

The ten caribou species of North America are divided by nature into two large groups. One is called the woodland caribou group, because its members inhabit the timbered regions of Canada, Idaho and Maine, and the other is called the Barren-Ground group, because it inhabits the country north of the limit of trees. The second group, however, habitually migrates southward in winter into the "land-of-little-sticks"—an Indian name for the feeble timber country of the Far North. I particularly request the boys and girls of America to lay a good and broad foundation of caribou lore by grasping and retaining the outstanding features of these two great groups.

During a hundred years of caribou hunting by Americans from "the States" nearly all their activities were directed at the most southerly species of the woodland group, as follows:

1. The original woodland caribou (*Rangifer caribou*), of New Brunswick, Nova Scotia, Maine, Quebec, Ontario, Minnesota and southern Manitoba.

2. The Newfoundland caribou (*Rangifer terræ-novæ*), almost white, once abundant in great herds, but found in Newfoundland only.

3. The black-faced caribou (*Rangifer montanus*), of British Columbia and northern Idaho.

After these and much farther north they found:

4. The Osborn caribou (*Rangifer osborni*), of Yukon Territory and eastern Alaska.

5. The Kenai caribou (*Rangifer stonei*), a large species, now reduced to about one hundred specimens inhabiting only the Kenai Peninsula in Alaska.

6. The small, little-antlered and degenerate Queen Charlotte Island caribou (*Rangifer dawsoni*), now rare and found only in the island of the same name on the west coast of British Columbia.

Except the Queen Charlotte species, all the woodland caribou are much larger and heavier than the members of the Barren-Ground group. It is possible to point out only two differences between the antlers of the two groups that are general and permanent. The woodland antlers have a much greater number of branches and points than those of their northern rivals. It is quite common for the woodland caribou to have from thirty-five to forty points, and sometimes as many as fifty, whereas the Barren-Grounders have less than thirty. The typical woodland antlers remind me of a tree-top with many branches, whereas the Barren-Ground type is more like a high-backed rocking-chair with long, naked posts and few points.

The woodlander, as its name implies, prefers to live in forested regions, but in winter it goes much into the open. In the open timber of small trees on the Atlantic watershed as far north as Churchill River (Hudson Bay) and in the forested regions of British Columbia, Yukon Territory and southern Alaska the woodland species still holds on. The two species nearest to us (1 and 2) once lived in good-sized herds. On the open prairies of Newfoundland it once was possible to see migrating herds of hundreds or even thousands of individuals. But alas! Word has just reached New York that the great herds of the

Newfoundland "barrens" have been broken up by the hunters' rifles, and that only small bands remain. However, this report has not yet been verified.

On the Pacific slope, where the timber of Idaho and British Columbia is heavier than that of the East, the black-faced caribou (3) live in very small bands. Col. Theodore Roosevelt, when fresh from a caribou-hunt in northern Idaho, once feelingly described to me its character. Said he: "If you will take all the furniture of a house, pile it four feet deep into the dining-room and then spend a long day in climbing over it you will know just what that caribou-hunting was like."

Unlike most other females of the Deer Family, the female caribou have antlers, but they are small and weak and delicately formed. We have a pair from Quebec that has been, and still is, regarded as an exquisite curiosity in caribou antlers. It has a great many branches and points, but it looks as if it had been made by a cunning human workman to adorn the head of a reindeer in toyland. In male caribou antlers, the beam length of which is the measure of size, the dimensions vary from forty up to sixty-four inches. Often the flat palmations on woodland antlers are very wide and abundant, and the really fine antlers of this group often are grand and imposing.

The Osborn caribou (4) is the largest species of all, and often it stands four feet seven inches high at the shoulders—which for a caribou indicates a large and bulky animal. Quite in keeping with its body size, the antlers of the Osborn caribou are the longest and the most stately of all, though not so rich in number of points as those of species 1 and 2.

The woodland caribou group is all very well in its quiet

way, but it is the Barren-Ground group that sends a thrill through my pen. As I write the name I see visions of starving and half-frozen men—Dog Rib and Yellow-Knife Indians, Eskimos and white explorers—hurrying desperately over frozen snow through cutting blasts at forty-five degrees below zero, seeking Barren-Ground caribou to avert starvation. I see Dillon Wallace hurrying back to the coast for food and help for poor Hubbard, ill, foodless and dying in the interior of Labrador because the country has been found totally destitute of caribou.

The Barren-Ground caribou are the great life-savers of the zone of ice and snow. There are four well-defined species, and they are just as easy to learn as any Humpty-Dumpty you ever saw. Here they are—and shame be upon the boy or girl who refuses to be introduced to them:

7. The real original Barren-Ground caribou (*Rangifer arcticus*), which even to-day exists in millions, covers the widest areas of any caribou species. Its range begins in the extreme north of Manitoba and Saskatchewan, extends north to the arctic coast, on up through the great arctic islands to Ellesmere Land, eastward to northern Labrador and northwestward to eastern Alaska and Point Barrow. More of this species anon.

8. Grant's caribou (*Rangifer granti*) is the species with fine, long fingerlike antlers. From the Far North its home extends down to and all along the Alaska Peninsula, where it is now fully protected from killing. This is the largest and finest caribou of the Barren-Ground group, and it seems to be quite isolated from the main body. Its antlers are from fifty to sixty-two inches long.

9. Peary's caribou (*Rangifer pearyi*) was discovered

by the finder of the North Pole on one of his last trips to Ellesmere Land. It is the smallest caribou species, and except for a pale gray "saddle" on its back it is a wholly white animal. Its antlers are absurdly small.

10. The last is the Greenland caribou (*Rangifer grœnlandicus*) of northern Greenland and I know not how much more of that icy isle. It is small, and its antlers are fairly long, but thin and very lacking in points. The small bands that have inhabited the western edge of the great Greenland ice cap have furnished timely food to many a hungry explorer and seal-weary Eskimo.

Mentally the true Barren-Ground caribou (7) is a wise animal; and about it there are two important facts to relate. The first is that the wisdom of the animal in managing its internal affairs has been so practical and so pronounced that it has resulted in a degree of prosperity that has produced millions of representatives, and it has spread them by migrations over a total area that is enormous. The second fact is the definite and fixed system of semi-annual migrations that have become a vital feature of the social habits of this species. Let us illustrate.

Although it is dangerous to discover a "general rule" of wild-animal conduct and still more dangerous to announce it, yet I am tempted to say that it seems that the whole great and far-flung mass of Barren-Ground caribou moves northward every spring several hundred miles or so, to the treeless prairies of the arctic "barren-grounds"—there to feed and to bear their young; but with the approach of winter they gather together and march southward in great masses to reach the edge of the subarctic forests. The migration, as the explorer Tyrrell says, is

for the purpose of wintering in a region "where the trees are festooned by a long, black, hairlike lichen," on which the caribou gladly feed. Fortunately this great migration once was observed by a man competent to appreciate and describe it. The place was Mackay Lake, which is north of the eastern end of Great Slave Lake. While there encamped Mr. Warburton Pike saw what he has thus described in his book, *The Barren Grounds of Northern Canada:*

"Scattered bands of caribou were almost always in sight from the top of the ridge behind the camps, and increased in number till the morning of October 20, when little Baptiste, who had gone for firewood, woke us before daylight with the cry, '*La foule! La foule!*' (The throng!) Even in the lodge we could hear the curious clatter made by a band of travelling caribou. *La foule* had really come, and during its passage of six days I was able to realize what an extraordinary number of these animals still roam the Barren Grounds.

"From the ridge we had a splendid view of the migration. All the south side of Mackay Lake was alive with the moving beasts, and the ice seemed to be dotted all over with islands, and still away on the north shore with the aid of glasses we could see them coming like regiments on the march. In every direction we could hear the grunting noise that the caribou always makes in travelling.

"The caribou, as is usually the case when they are in large numbers, were very tame, and on several occasions I found myself right in the middle of a herd, with a splendid chance to pick out any that seemed in good condition. . . . Notwithstanding all the tall stories that are told of their numbers [the buffaloes] I cannot believe that

the herds on the prairies ever surpassed in size *la foule* of the caribou."

In the autumn of 1922 the western edge of the great caribou mass migrating southeastward from northern Alaska passed close to the suburbs of the town of Fairbanks. The citizenry turned out in force to kill caribou, and the slaughter that occurred was vividly described in the newspapers of the United States and Canada. It was set forth that the lady who filled the position of assistant postmaster killed from her automobile her legal quota of five caribou. Of course it is to be understood that the carcasses obtained in that now historic kill were shot quite according to law and were preserved in cold storage for winter use.

From Juneau, Alaska, have come strong complaints of the destruction of caribou by wolves, coupled with appeals to the government that the wolves be reduced.

In Canada a commercial company has been chartered and capitalized for the purpose of buying and bringing overland from Alaska about one thousand domestic reindeer with which to start extensive breeding operations on the west coast of Hudson Bay, on a commercial basis. It is intended not only to breed reindeer for the market but also to try to cross reindeer with the wild caribou that visit that theatre of operations and gradually to bring great numbers of wild animals into a state of passive domestication. The Canadian government is friendly toward this novel undertaking, and all who know of it sincerely wish it unbounded success.

The domestic-reindeer industry in Alaska has reached such proportions that the total stock now held by herd owners is said to number nearly three hundred thousand

head. A flourishing herd is situated at Point Barrow, at the "farthest north" in Alaska, and is in the possession of Mr. Charles D. Brower. Already frozen reindeer carcasses have been shipped in considerable numbers to the Seattle market and sold at reasonable prices.

Sometimes caribou-hunting is high-class sport, and at other times it is not. When the herds are large and the killing is easy the sportsman finds it tame and uninteresting and rarely returns to it a second time. When the caribou live in very small bands in treeless mountains it is a little more interesting; but even then, what sport is there in killing big game with a rifle that can kill at a quarter of a mile or more?

The worst thing about the caribou is now to be told; and I particularly commend it to the attention of all those who most unwisely believe that it is possible for some species of birds or mammals to exist in so many millions that they "never can be exterminated" by man. At this moment the Barren-Ground caribou millions are being destroyed by the deadly modern rifles that fur-traders have put into the hands of the Indian and the Eskimo tribes living along the arctic coast; and at the same time the natives are urged to give up living on seal meat, dwell on land, trap fur and live on the caribou. Men from the north who know about all this declare that now the caribou of the arctic barrens of Canada are doomed!

But I do not share that gloomy view. I firmly believe that the watchful Canadian government at Ottawa will step in with its wonderful mounted police force and stop all unjustifiable slaughter of its caribou.

XVI

THE VANISHING MOOSE

THE Deer Family of the world, as you may see it hanging upon the eastern wall of the zoological hall of our National Collection of Heads and Horns, is a large and exceedingly varied family unit. Beside the regular round-horned deer species of Asia, Europe and the three Americas, it contains a bewildering array of caribou, the reindeer and the moose of northern Siberia, northern Europe and North America.

The moose is by far the largest member of all the Deer Family. A large bull moose of the Maine woods, killed by Mr. W. L. Miller of Bangor, weighed 1,123 pounds.

To my primitive mind a full-grown bull moose with his antlers on is just as odd and wonderful as any prehistoric monster that ever came down the pike from the past. Those antlers—and particularly the big ones from Alaska—are not to be understood or believed until seen. I dare any man to describe a pair in words so that a man from Mars could imagine them as they are. Their wonderful "palmation" is an enormous more-or-less basinlike expansion, studded along one edge with long points of solid bone. A big pair of Alaskan antlers with the dry and clean skull once weighed ninety-two pounds, and spread seventy-six inches. Those great twenty-inch-wide slabs of rough and rugged bone are nearly two inches thick, and I have seen palmations so cuplike that they would hold a gallon of water. I do not believe that any two men living could

measure a big pair of Alaskan moose antlers, in half a dozen dimensions, and get the same results.

A full-grown bull moose sometimes stands seven feet high at the shoulders, and at all times he has seven astounding points. They are: (1) his enormously tall and big legs; (2) his huge but short-coupled body; (3) his lofty shoulder hump; (4) his huge head and "bell"; (5) his flabby, convoluted and far-overhanging nose; (6) his thatch of long, coarse and grasslike brown-black hair, sometimes six inches long on the neck and shoulders; and (7) his indescribable shovel antlers, already mentioned. Under the throat hangs a ropelike strip of hair-covered skin a foot long, called a "bell." The female moose has no antlers, and only one out of many possesses a "bell."

Go the world all over if you like, and you will find nowhere a land animal so outlandish in form, so odd or so "out of drawing" as the moose. The giraffe is not in it beside him, even with his long neck and legs and his wonderful color scheme.

The ancestors of the moose of North America came to us across the bridge of land that once joined Alaska to Asia. That is so sure and certain that it is not seriously open to doubt. From the Alaska end of the Great Bridge the moose immigrants spread eastward as far as the Mackenzie River, southward to the head of Bristol Bay, to the Alaskan Mountains, the Susitna River and the Kenai Peninsula. Beyond all that they went right on down the mainland of North America, populating the Rockies and the Coast Range to British Columbia, Alberta, Yukon Territory, eastern Oregon and Washington, Idaho, western Montana and northwestern Wyoming, there stopping a short distance south of the Yellowstone Park. In 1922

careful counts and estimates made by the rangers of the United States Forest Service of the moose then living in the United States west of Maine yielded the following totals: Idaho, 367; Montana, 1,142; Minnesota, 1,080; Wyoming, 1,734. Total, 4,323.

Jumping across the Canadian buffalo plains, they flourished from northern Manitoba to northern Minnesota, and thence eastward throughout Ontario, Quebec, northern New York, Maine, Nova Scotia and New Brunswick. In New York they came down to the Mohawk River, but that was their dead-line. They could not live south of it, and they cannot do so to-day, even under the best conditions that modern game preserves and zoological parks can offer. No; I cannot tell you why; and I wish that I could. To-day the only moose in the United States east of Minnesota are in Maine.

I once owned an entire live moose. I achieved it on the north shore of Georgian Bay, Ontario, and when I bought it of a native—because I couldn't resist it—it was the oddest and most unbelievable "pet" that our family had owned. Its little square, red-haired body stood up on four enormously tall and awkward stilts—even taller in proportion than the legs of an adult moose. The neck was so nearly absent that our little-girl moose had to kneel down in order to drink milk out of a pan placed on the ground; but she knew how to do it quickly and gracefully.

In their home country it is quite possible to rear a moose calf and maintain moose alive in captivity; but don't try it any farther south. I know that there have been a few exceptions to this rule; but they have been painfully few, and they only prove the rule. The chief trouble is that the moose is a thoroughgoing browsing animal and

not naturally a grass-feeder or a hay-eater. You can force him to eat alfalfa or clover hay until he dies; but that is all. He loves to eat small twigs, leaves, lily bulbs and moss of large dimensions, and food of those kinds which suit him is difficult to select and to serve throughout the year.

In the charming forest ponds and lakelets and river margins of New Brunswick, Nova Scotia, Maine, and southeastern Canada the moose love in summer to wade and dive for lily bulbs and stems. Many a camera fiend has caught and "shot," painlessly, many a moose because of that habit; and some of the ugliest wild-animal pictures ever taken on this earth have been of cow moose that, disturbed while feeding, are fleeing shoreward. In the short-haired season a wet cow moose is not a thing of beauty, but on the "movie" screen she always raises a laugh.

The trees the twigs of which are best beloved by browsing moose are the birch, hemlock, spruce, alder, aspen willow and maple. Naturally in procuring twig food the tall and capable moose browses first upon bushes, and then upon the tree branches that he can reach. When the visible supply of reachable food has been consumed the moose proceeds to bring down coveted saplings by marching astride of them and "riding them down" to the ground. That is shown in the mounted group in the United States National Museum at Washington.

During the deep snows of winter a number of moose often live close together in a forest containing food, and through their moving about in a small area the snow is trodden down until they form what is called a "moose-yard."

The wild moose displays much of what we are wont to call "character." I am inclined to the belief that the

individual moose manifests more original thought than any other American member of the Deer Family. In the fall season when the new antlers are fully grown and free from velvet the big bull moose is always ready to be "called." In calling for a mate the forlorn female moose utters a long and resonant bawl that goes pealing far and wide through the forest or across lake waters, rising and falling in great waves and ending in two or three alluring grunts. With a birch-bark megaphone the native backwoods guide easily imitates this call. If there is a big bull within hearing, he answers and starts straight for the lure. The call is repeated as he comes, to guide his erring steps, until finally he approaches within easy range of the hunter's more-or-less trusty rifle. Sometimes the moose advances to such close quarters that the hunter finds himself in danger of being either run over by accident or actually charged. Ethically it is an unfair way to kill a moose; but in dense forests moose-calling is sometimes the only way in which to find "a big bull" before the sportsman's last day of grace expires.

The moose of the thinly timbered regions of Canada sometimes adopts a form of genuine strategy that betokens reasoning of no mean order. A moose that is pursued by a tireless hunter and knows it, sometimes swings off to the leeward side of his trail, describes a wide semicircle rearwards and then lies down in concealment near his own trail in a position to get the man-scent of his pursuer down the wind. When he gets it he rises and steals away in a new direction, thus gaining about two miles or more with but little effort.

Like many other members of the Deer Family, full-grown bull moose often fight for herd leadership in the fall

when their antlers are new and all moose are feeling well fed and prosperous. The great majority of those combats end without serious damage to either antagonist, but in perhaps one fight out of every thousand the two pairs of antlers become interlocked and cannot be separated by the fighters. A moose can drive forward with a push of a thousand pounds or more, but he can pull back with a pull of only two or three hundred pounds; and so the two of them die miserably, unless some Indian discovers them and mercifully ends their blasted lives with two bullets. Our National horn collection contains two sets of interlocked moose antlers.

Naturally the sport of moose-hunting has attracted a large total of big-game sportsmen, some of whom have hunted not wisely but too often. In view of the wonderful zoological character of this animal, I do not like to have any friend of mine tell me that he has gone moose-hunting eight or ten times and killed that number of bulls.

One or two of those great beasts should be quite enough for any sportsman who is not collecting a group for a large museum that will actually mount and display his victims. How is it that a humane man can find pleasure in killing the same species over and over again until his friends are bored to death by hearing of his exploits? Even the successful big-game shooter should "have a heart" and learn what it means to have enough.

Owing to the creature's great size and to the long ranges of the modern high-power rifles any amateur can go out with a fine guide and kill a moose. Owing to easy slaughter it is possible for hunters to kill all the moose in any given locality in quick time. In the open country of Alaska, Yukon Territory and the Cassiar Mountains

From the painting by Carl Rungius.

The American Moose, in New Brunswick.

White-Fronted Muskox from East Greenland. Part of the Herd in the New York Zoological Park.

A Young Muskox.

moose can be seen afar, and without strict protection they could in those countries be quickly exterminated. The Kenai Peninsula is the dark-and-bloody ground of the giant Alaskan moose. In spite of governmental protection trustworthy reports came in 1922 that on the Kenai about three hundred cow moose were openly slaughtered, totally contrary to law, and that the comatose game-warden inhabiting a store in Anchorage, who was paid by the United States Government to enforce the game laws of Alaska, did virtually nothing to prevent either the slaughter of the animals or the sale of their meat. In justice to the government it should be added that that warden is now out of the warden business.

In northern Minnesota until recently each hunting season saw the killing of more than three hundred moose according to the law. I have a photograph of eleven bulls lying on eleven trucks in the railway station at Minneapolis. But the slaughter of 1922 was the finish of all moose-killing in Minnesota. Mr. Donald Hough put the situation before the Legislature so strongly that in 1923 a law was passed stopping all moose-hunting in that state for a term of years.

In some of the moose regions of Quebec the large bulls have been killed off so thoroughly that only cows and young bulls are visible. In New Brunswick cow moose are now plentiful, but there are barely enough big bulls to afford good hunting. That province has been very successful in preserving its supply of moose on a continuing basis to afford good hunting. In Maine the supply of moose ran so low that there is now an absolute close season, which holds good until 1929.

In 1921 the State of Wyoming issued fifty licenses for

the killing of moose immediately south of the Yellowstone Park; and there are those who think that the result was disastrous to the stock of moose rightly belonging to the park.

There are to-day many moose in Alaska, in spite of the slaughter for the markets along the line of the Alaska Central Railway, along the Kuskokwim River for the mining camps and on the Kenai Peninsula. Along the Yukon River the scarcity of salmon, due to unwise overfishing by the canning industries, has starved out many of the river Indians and driven them back into the mountains to subsist on game. It is said that as they move from place to place they "clean up" the moose and mountain-sheep as they go and leave lifeless wastes behind them.

It is to be regretted by the millions of Americans who cannot see live moose in their haunts that this species cannot live and thrive in captivity like nearly all other hoofed animals of Africa and Asia. Temporary successes with moose have been recorded in the Cincinnati Zoological Gardens and in Golden Gate Park, California. It behooves all our American museums to provide themselves with large habitat groups of moose while it is possible to procure the specimens for them, for that vanishing species will by no means last forevermore on this gun-cursed continent.

XVII

THE FROST-PROOF MUSK-OX

Is the last chapter of the life of the musk-ox now in the making? Let us look over the ground and judge.

For a hundred years or more the people of the United States and Canada have been enjoying the possession of three great wild-animal rarities, all strictly limited to North America. They are the white mountain goat, the prong-horned antelope and the musk-ox. So far as continuance is concerned we have felt no uneasiness about the goat. We have been worrying hard about the antelope, and now the musk-ox has become a source of anxiety.

Professor Henry Fairfield Osborn has been warning us in strong terms about "the end of the age of mammals"; and a year ago last January, when an observer from the Far North openly declared his belief "that to-day not more than one hundred musk-oxen remain alive in the mainland of North America" it gave his hearers a jolt. He said that the Eskimo tribes of the northeastern edge of the Canadian Barren-Grounds have been liberally supplied by the fur-traders with modern high-power rifles, and that as a result the slaughter of musk-oxen has almost exterminated the herds of the Barren-Grounds.

This is the regular thing to-day and quite in line with the treatment of wild life everywhere else in wild regions. The wise thing for American young people to do is to become acquainted now with the musk-ox while it is possible to find a few outside the stuffed-animal collections of our museums of natural history.

Of all the strange animals of North America the musk-ox is one of the queerest and most interesting. First of all, it is a connecting link between the wild cattle and sheep. It challenges our keen admiration because it is able to live and thrive in the fiercely cold arctic regions, even up to the farthest north for hoofed animals, the most northerly point of Greenland. It has horns like the wild Cape buffalo of Africa, cattlelike hoofs, and its flesh looks and tastes like beef. It has next its body a dense coat of soft, clean, woolly hair, and through this grows a rain-coat of very long, straight, brown hair like that of the Tibetan yak. It has a tail so short and small that the animal seems tailless. Its supply of "musk" and its "musky" odor are both wholly imaginary.

The intelligence of the musk-ox is by turns adequate and defective. It does not fully know the dangerous character of man, and it does not know that every wild animal not under protection should fly from the presence of man. For thousands of years the musk-ox herds have been preserving their calves from the hungry wolf-packs of the north by most excellent military strategy. When wolves threaten a herd it at once forms a compact circle, with the adult bulls and cows standing shoulder to shoulder in the outer circle, and with all the calves and young stock inside.

Even to hungry wolves with time aplenty that circle of deadly down-dropping horns is impregnable. A bull may leave his place for a moment, to rush out thirty yards or so in an effort to puncture a wolf, but he never is lured too far. Back he goes to the circle, backs into his place and plays the game to the end.

Now, although that plan is exceedingly wise in defense against wolves, with man as the enemy it is fatal. It means

the easy shooting down of the entire herd! Is it not too bad? The musk-ox only dimly realizes the deadliness of man, and, worst of all, he has not yet learned that the Eskimo and the Indian now have deadly repeating rifles instead of old-fashioned spears. When a man is sighted in the offing, either at one mile or at three, the herd should rush off at top speed in the opposite direction and run for about five miles. I wish I could give *Ovibos* a tip on that point.

Now, is there any one who holds that in forming his defensive wolf-proof circle the musk-ox does not think and reason? I hope not. The wild animal that attempts to live in the Far North must either think or die!

For nearly fifty years the killing of the musk-ox has been proceeding on a determined scale. And what is the most striking result up to date? It is nothing less than the complete disappearance, or extinction, of the Barren-Ground species all the way from the longitude of Point Barrow, Alaska, to about longitude 100°, which means the head of Chesterfield Inlet. This area of extermination is precisely fifteen hundred miles long from east to west! We know that the musk-ox herds once lived as far west as the meridian of Point Barrow, Alaska, because Mr. Charles D. Brower, who lives at that point, recently sent me some musk-ox skulls, horns and hair to prove it.

This tale of extermination during the past seventy-five years has been wrought by the coast Eskimo and Indian tribes, with help from white men through the traffic in skins. It rarely has happened in our own time that savages have exterminated their own wild-animal food supply. The Indians chiefly concerned, east of the Mackenzie River, are the Dog-Rib and Yellow-Knife tribes; and they have virtually finished their work.

To-day it is the coast Eskimo that are killing the last musk-ox on the mainland of North America. It was one of the coast Eskimo clans of that region that recently murdered the two white explorers, Mr. Harry V. Radford of New York and Mr. Street of Canada.

The late Doctor C. Gordon Hewitt of Canada has published in his new book, *The Conservation of the Wild Life of Canada,* this startling statement: "The remaining herds of musk-ox are now restricted on the mainland to the region between Chesterfield Inlet and Back's River." This area is approximately one hundred miles by three hundred, and the total number of survivors there recently has been estimated at "less than one hundred."

During the last three years of his life Doctor Hewitt put forth his utmost efforts to save the musk-oxen of northern Canada from extinction by those who wanted their skins for the fur trade. His efforts were entirely successful so far as the enactment of prohibitive laws was concerned; but to stop all killing by the Eskimos was impossible. The killing of the musk-ox for marketable skins was stopped, and the shambles of Melville, Banks and Victoria Islands were transformed into musk-ox preserves!

But the needs of the natives constituted the one loophole in the law that now is being utilized by the Eskimos north of Chesterfield Inlet in exterminating the musk-ox. The law gave them the right to kill "when they are actually in need of the meat of such musk-ox to prevent starvation." They are grossly abusing this privilege, and therefore giving it to them was mistaken generosity. We have long contended that the alleged "starvation" of native

tribes can be averted without the extermination of the valuable wild animals to which they look for food; but it takes a superhuman effort to make governments believe it and act upon it.

So far as written records reveal the life histories of wild animals very few wild-animal species ever have been exterminated by savage tribes using their own weapons. For thousands of years the balance between the crude weapons of savagery and the natural increase of wild animals was excellently preserved. For example, our North American Indians alone never would have exterminated the millions of American bisons with their own weapons and for their own purposes. It was the deadly white man who did it, and the Indians helped with the firearms of the white man. To-day with the Eskimos of the North shooting down the musk-ox herds with beautifully finished, long-range, high-power repeating-rifles it is high time for some one to find out how many musk-oxen remain, where they are and what is likely to be their fate.

Let us begin with the farthest north of *Ovibos* and swing westward. In the first place, be it known that there are two well-defined species. The species of the farthest north is called the white-fronted musk-ox, and its Latin name is *Ovibos wardi.* It is marked by a conspicuous dull-white band across its forehead, which is particularly noticeable in the calves before their horns develop. When Peary made his long sled journey over the great ice-cap of Greenland to the extreme northeasterly jumping-off place, there at the end of his outward hike and actually within half a mile of the most northerly point of land in the world he found a small band of musk-oxen of this species, and

killed one. And mighty glad, too, were the hungry explorers thus fortunately to obtain several hundred pounds of delicious meat for themselves and their sled-dogs. The musk-ox often has thus contributed to the cause of arctic exploration and saved many a hard-pressed explorer from scurvy or worse.

We know that half-way down the east coast of Greenland, around Franz Josef Fiord, which is in latitude 70°, the white-fronted musk-ox still exists in fair numbers. We have to-day in the New York Zoological Park five lusty ones that were caught there in the summer of 1922 by a party of Norwegian whalers, who took time off from their whaling to accomplish that task. The Zoological Parks of Philadelphia and Washington have each a pair of calves that were taken on that occasion.

It seems to be a fact that the great Greenland ice-cap is destitute of food and for the musk-ox is virtually uninhabitable. It is in the rough and broken country at the edge of the ice-cap, where the valleys and moraines meet the sea, that vegetation grows and musk-ox and caribou can live.

The white-fronted musk-ox crosses from Hall Land, in Greenland, to Grant Land. When Lieutenant, afterward General, A. W. Greely established his party of polar observers and explorers at an abiding-place that he named Fort Conger, on Lady Franklin Bay, he found a musk-ox herd within easy reach. In 1902 Commander Peary sent to us a calf that his party had captured alive at Fort Conger in the summer of that year.

From that fearsome northerly point the white-fronted musk-ox ranges southward through Ellesmere Land and Melville Island, and I know not just how many more of

those great arctic islands, before it meets the other species. I am unable to draw a boundary-line between the two. At all events it seems to be true that wherever the northern species leaves off the southern species begins; and the two once roamed over all the huge arctic islands that lie between Greenland and the mainland of North America.

The southern species is known as the Barren-Ground musk-ox (*Ovibos moschatus*). Once it inhabited the arctic coast and the hinterland of the North American mainland all the way from the northern finger of Hudson Bay westward to the longitude of Point Barrow, northwestern Alaska. That is a stretch of eighteen hundred miles! North of it lie the "lands" and islands of the great arctic maze. They are so numerous that to recite their names would be hopelessly confusing. In winter many of the islands are connected by ice. It is safe to say that in past times, before the modern rifle began its deadly work of harvesting musk-ox hides, before the killing by exploring parties and by sportsmen for "sport," every large island of that vast region was inhabited by the musk-ox.

The extermination of the Barren-Ground musk-ox began about a century ago in the vicinity of Point Barrow, its extreme western range. It is only the oldest of the Point Barrow Eskimos who remember having heard their fathers tell of having killed musk-oxen and eaten of their meat. The herds were so quickly annihilated everywhere west of the Mackenzie River that for fully a quarter of a century the belief prevailed, even among some American zoologists, that the species never had lived in Alaska during recent times.

During the past twenty-five years it is possible to trace the progress of the extermination eastward. For example,

it reached the latitude of Cape Bathurst about 1902. It passed the chain of lakes north of Great Slave Lake about 1910. Now it is up to the head of Chesterfield Inlet, within three hundred miles of Hudson Bay. Between that riverlike inlet on the south and Back's River on the north the last musk-ox herds of the North American mainland are making their last stand. It is to be feared that the whole of them were shot down by the King William Land Eskimos in 1923—before the Canadian Government could forcibly intervene to prevent it.

All this brings us squarely up to the question of the preservation or the extinction of the two musk-ox species of North America, the arctic islands and Greenland.

The answer to the musk-ox question rests one-tenth with Denmark and nine-tenths with Canada. We of the United States are out of it, because we own not one wild musk-ox in the north lands.

The former Canadian Government was keenly alive to the perils of the situation. I say "perils" because no statesman or good citizen can possibly be indifferent to the fate of a species so valuable and so extremely interesting as the musk-ox. It is unthinkable. In 1916, when the Canadian Conservation Commission was framing the new Northwest Game Act, I had a golden opportunity to discuss the needs of the musk-ox with the late Doctor C. Gordon Hewitt, the special adviser of the commission. I know that the utmost protection then securable was put into the new game act and enacted into law in 1917.

The act prohibits entirely the killing of the musk-ox for its skin; it prohibits all killing by white men except under government license, and even then only two skins or heads may be taken under each license. *Bona-fide* ex-

plorers may kill musk-oxen for food, but not for their skins. Victoria, Banks and Melville Islands were constituted musk-ox reserves "and as centres for their natural distribution to other parts."

So far as killing by white men is concerned, all Canadian-owned musk-ox territory—that is, everything outside Greenland—now is tightly bottled up. But alas! there is one awful hole in the law encircling the musk-ox, and it may prove fatal. It is the right to kill the animals accorded to natives who are "in need of the meat to prevent starvation"; and what is easier or more natural than for the Eskimo fox-trapper to claim and pretend, and even to swear, that he is "starving" whenever and wherever he gets a chance to kill musk-oxen! Every Eskimo always "needs the meat!" And so the high-power-automatic Eskimos can by subterfuge and pretense evade the spirit as well as the letter of the Northwest Game Act as it now stands and exterminate the musk-oxen everywhere outside Greenland. At present I do not know whether or not Denmark now prevents the killing of musk-oxen by white men for their skins.

At this moment the Canadian Government is giving serious consideration to the possibilities in the domestication of the musk-ox—which means inducing herds to settle down in large protected or fenced areas and multiply. The task is perplexing and difficult, because up to this date the musk-ox never has bred in captivity. Our own experiences with this animal in captivity have been squeezed dry in our efforts to give the Canadian Government all the facts we have that may prove either helpful or suggestive.

First and last, we have had fourteen musk-oxen in the New York Zoological Park. We have had one Barren-

Grounder from near Cape Bathurst, one white-fronted musk-ox from Fort Conger, one from Melville Island, six from Ellesmere Land; and to-day we have five from eastern Greenland.

The herd of six from Ellesmere Land, presented to us in 1910 by Mr. Paul J. Rainey, gave an excellent account of itself. Some of them achieved a longevity in captivity beyond any previously attained. The last survivor was with us nearly eight years! But there was only one cow in that herd, and there was no breeding. Our female that Captain Bernier brought to us in 1909 from Melville Island lived until 1916, but she was so savage that no other animal could share her corral.

No; even in New York musk-oxen, as we keep them, do not suffer from the heat; but if kept in a cruelly hot, sun-baked, unshaded corral they would suffer just as any other hoofed animal would. They cannot endure the thirteen solid inches of rain that fall in New York City every winter, and when those drenching rains come in cold weather we drive our animals into their house and shut them in. If we did not do so, every musk-ox we have soon would die of pneumonia. They can stand any amount of dry cold, however, and flourish in it.

Once by way of experiment we caught a two-year-old musk-ox in the shedding season and controlled it while our keepers skilfully combed out through the long, straight hair of its rain-coat the whole of its fleece of fine, dry, curly wool. The wool had been shed from the skin, and the operation was painless. It required the services of half a dozen men to get that one fleece into our possession; and this enabled us to determine just what it would mean to get the wool from a full-grown, strong and dan-

gerous animal. My opinion is that using the musk-ox for wool-growing is not a proper commercial undertaking. The wool we obtained weighed almost fifteen pounds, but we had rather be excused from combing a herd of full-grown animals!

On Mr. Paul Rainey's ship I dined on musk-ox steak. It was quite like beef, and there was neither musky odor nor musky taste.

The temperament of musk-oxen always is nervous, and when they are under compulsion their temper is vicious and dangerous. They persistently refuse to be petted or handled; and many adult animals are of savage disposition. Their horns meet in a broad base over the top of the skull, drop far down, then sharply curve upward for several inches, terminating in sharp points. They are specially designed for puncturing the vitals of wolves and polar bears, and the musk-ox knows to a nicety how to strike home.

The experiment now being considered by the Canadian Government of colonizing musk-ox herds on the Barren Grounds immediately north of Fort Churchill is well worth a determined trial. They must be kept in a fenced range, for otherwise they would migrate northward at the first call of spring. Also they would at once wander far beyond control.

Just how many musk-oxen now remain alive no man knows, and there are few persons who can make a good guess. On Melville Island, in 1917, there were, Mr. Stefansson estimated, between three thousand and four thousand head; but we do not know what mischief has been done there since that time.

In closing, we repeat that the musk-ox is unique; it is

one of the most picturesque and zoologically interesting animals of all North America, and we must add that it looks like one of the next candidates for oblivion. It is a toss-up which will be the next species to become extinct, the musk-ox or the prong-horned antelope.

Yes; we are doing our level best to save the prong-horn; but saving it is a mighty difficult task because of the lack of natural stamina in the animal.

Postscript: On September 7 and 14, 1925, there were born in the musk-ox herd of the New York Zoological Park, mentioned on page 262, two musk-ox calves, each of which lived four days. In spite of all efforts to rear them, they lacked the physical vigor, and their young mothers (each only two and one-half years old) lacked the milk that was necessary to their survival. These were the first musk-ox calves born in captivity in North America,—or elsewhere, so far as we are aware. The largest individual stood 18 inches high at the shoulders and weighed 16 pounds.

XVIII

THE AMERICAN BISON, AS HE IS TO-DAY

We are asked to put the American bison on the map as he is to-day. In the first place, we are at last able to say that as a species that great beast is no longer in danger of extermination by man or beasts, or by the elements that make for the destruction of wild animals. The men of the United States and Canada have, as effectively as was possible to them, atoned for the wicked slaughter that shocked the world from 1870 to 1884—the period of organized extermination—and that has kept it shocked ever since that bloody time. It was the wanton wastefulness of it all that struck people as particularly wicked and horrible.

In 1908, when we were laying siege to Congress for the creation of the Montana National Bison Range, at an initial cost of forty thousand dollars for land and a fence, at a very critical moment the conference committee of the House (in opposition) asked me doubtfully, "Will these proposed national buffalo herds yield any practical or economic benefits to the people of the United States?"

I replied with emphasis. "No. They will not. Their value will be wholly sentimental. They will represent the very least that we can do to atone for some of our sins against the bison millions of the past."

"Well," said the chairman after a short pause, "that is all right." And the bill passed.

Whenever a wild-animal species is at the point of extermination and disappearance its ability or inability to multiply and thrive in captivity becomes a matter of life

or death for that species. The species that is ignorant and foolish, that is too fussy about its food and water and too nervous about its neighbors, is doomed to go down and out. We can not coax or compel the wonderful prong-horned antelope to live, breed and mature in captivity, and so that species is likely to become extinct within fifty years from this date or less. The outlook is both discouraging and exasperating.

But the great American bison is different. He is an animal of steady nerves, serene temper, good appetite and persistent habits. Although occasionally he fights and kills some other bison, or at long intervals a man, he flourishes mightily in captivity and believes in the survival of the fittest. In fact, in comfortable captivity he breeds with wonderful persistence; and in the big national ranges wherein he roams and lives as a wild animal inbreeding has no bad effect upon him whatever. It is the domestic animals that suffer so much from inbreeding, by transmitting their weaknesses and diseases.

In 1889 the American bison species was at its lowest ebb, actually at the door of oblivion and ready to enter. Of the three and a half millions that were alive in the United States in 1870 there remained only 256 head in captivity, and 635 running wild. In all Canada the only wild bison that remained were some five hundred and fifty head in the wild and uninhabited region southwest of Great Slave Lake.

All the bisons of the Texas Panhandle except the few caught alive by "Buffalo" Jones were killed for their hides before 1890. Of those in the Yellowstone Park, which had increased by 1890 up to nearly two hundred head, all except about thirty were slaughtered by rascally

poachers for their skins and heads. The Canadian remnant was in constant danger of extinction by wolves and Indians, and few persons believed that any members of it would long survive.

At this point we come to the history that tells how the American bison was saved. I will begin with the strangest story of all; and it happens to be a genuine love story.

To-day the greatest herd of bison in the world is the Canadian national herd at Wainwright, Alberta, where about seven thousand four hundred and eighty-nine head are kept in a huge buffalo park of one hundred and sixty square miles under fence. The great herd was founded away back in the seventies on the love of a young Flathead Indian named Coyote for a Blackfoot Indian girl.

Coyote was an enterprising chap, and in a certain springtime he decided to make the journey from the Flathead country to the Blackfoot reservation, east of the Rockies, and pay a visit. On that reservation he fell in love with a Blackfoot maiden, and she fell in love with him. They were married, and then Coyote began to remember things. Finally he remembered that he had a wife back home; that it was against Flathead law to marry out of his tribe, and that it was against the law of the Jesuit fathers of the St. Ignatius Mission for him to have more than one wife.

Now, in that glorious springtime the Blackfoot Indians were gaily careering over the buffalo plains of the Cut Bank and the Milk River country, killing buffaloes on their summer range, drying meat and curing hides. Sandy-haired buffalo calves were plentiful and cheap. In the midst of Coyote's dilemma Mrs. Coyote No. 2 had a bright idea. She proposed that her people should catch

some calves for her and her beloved Coyote to take back to the Flathead mission and give as a peace offering to the fathers. Around the mission the grazing was fine, said Coyote, and the beasts would multiply into a herd.

That plan was carried out. The labor of convoying those three obstreperous calves—a male and two females—through the Rocky Mountains over a rough trail, was incredible; but they persevered, and finally, weary and travel-worn, reached the beautiful Flathead reservation. But alas! for the hardness of the human heart!

Instigated by the fathers at the mission, a squad of Indian police met Coyote, his bride and his embryo bison herd and immediately proceeded to inflict upon Coyote a tremendous thrashing. This so angered him that he changed his mind right speedily. He did not bestow any buffalo calves upon the mission. He kept them himself, reared them and soon had a herd.

Presently Joseph Allard coveted those buffaloes, and Coyote sold to him about one-half of them. Afterwards Allard bought the remainder. The grass of the Flathead range was fine and plentiful, and the herd rapidly increased. Presently Michel Pablo bought it from the Allard heirs, and finally he sold his entire holdings, of seven hundred head or so, to the Canadian Government, which bought buffaloes not wisely but too well. To-day the Canadian Government has more buffaloes than it needs; and it is only a few old gray-beards like myself who know how the love of a wild Blackfoot girl and a tame Coyote from the Flatheads founded that mightiest of herds.

From 1880 onward several men of the United States, one Texas woman and one man in Canada were wise and

energetic in the matter of catching or buying buffalo calves for breeding purposes. The most famous of them was C. J. Jones ("Buffalo" Jones) of Garden City, Kansas, who made two exciting and adventurous trips to the Texas Panhandle, where he caught a lot of calves and —wonder of wonders!—seven adult cows! The calves lived, thrived and multiplied. All seven of the cows fought, bled and died on the road from the Panhandle to Garden City.

In the Panhandle Mrs. Charles Goodnight proposed to her husband to capture some calves and found a herd —which they did. For a number of years Mr. Goodnight carried on cross-breeding experiments on his cattle-buffalo ranch, and produced a number of "cataloes"; but insurmountable difficulties developed that effectually prevented the realization of the Goodnight-Jones ambition to breed into range cattle a hardy strain of bison blood. Now all those efforts have been abandoned as impracticable.

In South Dakota, near Pierre, "Scotty" Phillips gathered young buffaloes and founded a herd that now contains about six hundred head. At the Manitoba Penitentiary near Winnipeg Warden Bedson started a herd, but when it began to assume serious proportions he sold it to "Buffalo" Jones. Mr. Jones once assured me that all the captive bisons now alive in North America have descended from a total wild catch of fifty-six head.

Meanwhile, what has been happening to the wild nucleus of thirty head in the Yellowstone Park in 1895 and the five hundred or more in the Far North of Canada? Contrary to all expectations, the Yellowstone Park remnant has actually survived and increased in a wild state to

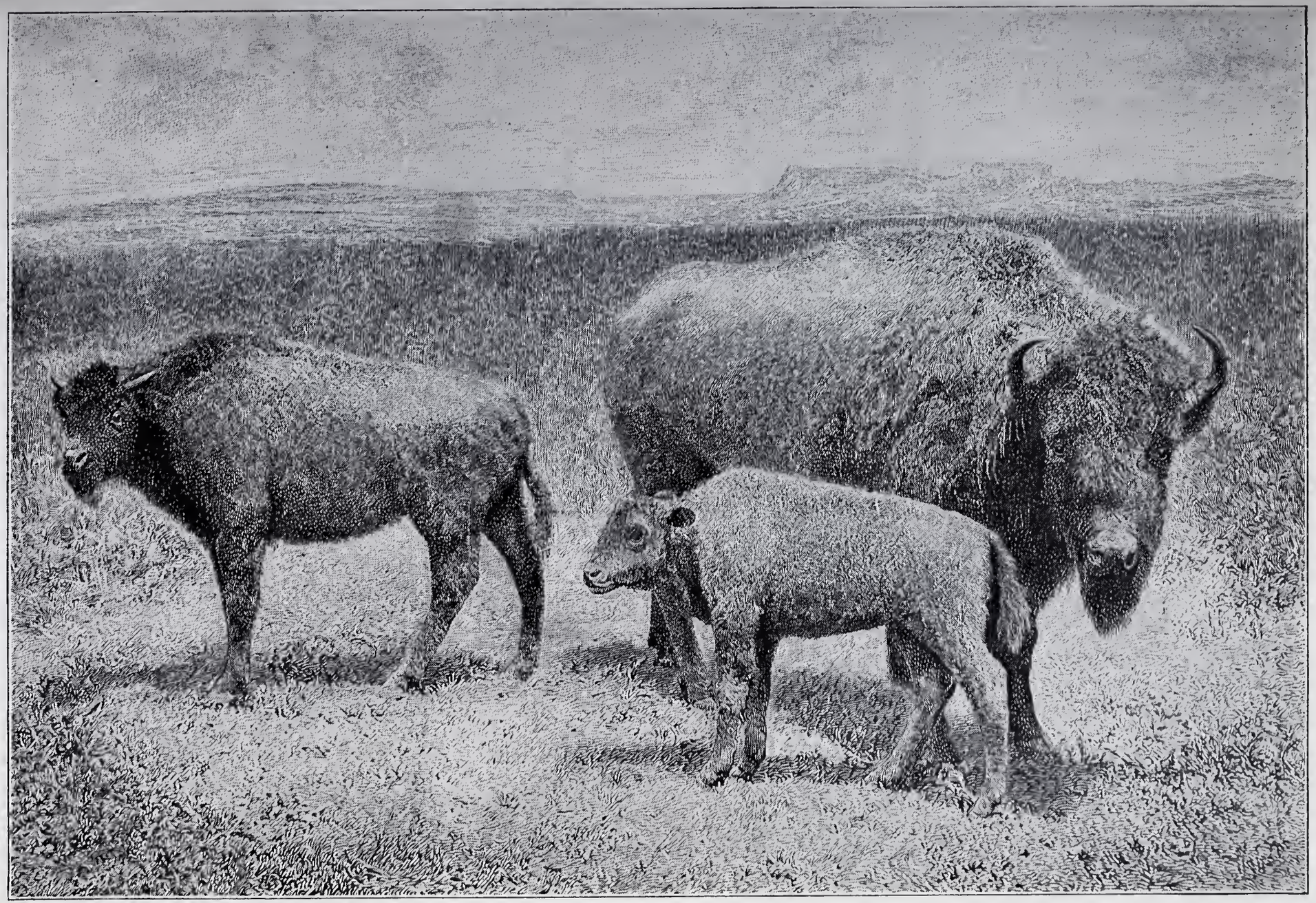
about one hundred head. In the north an equally surprising thing has happened.

Directly south of Great Slave Lake and extending down to the Peace River, half in Northwest Territory and half in Alberta, is the long pear-shaped range of two herds of the so-called wood bison. This animal is often classed as a subspecies of the southern bison. Mr. Maxwell Graham of the Canadian Government has by long personal investigation just now established the fact that the northern herd contains five hundred bisons or more, and the southern herd one thousand or more. All these animals now are rigidly protected by the Canadian Mounted Police from all killing by man; and the fear that the wolves were killing the calves almost as fast as they are born proves to have been groundless. All this is good news, and to the wood bison of Canada we wish long life and prosperity.

But even with six hundred and eighty wild bisons in 1896 and several hundred head in captivity in the hands of private individuals the friends of the bison held that the future of the species was not thoroughly secure.

All the wild ones might be killed by poachers, and those in captivity were constantly subject to epidemic diseases, dispersal by sale and slaughter. It was decided that the most perfect security against extinction would be found in a number of widely separated herds, grazing in huge natural ranges, securely fenced against wolves and poachers and owned by the national government.

As a start the New York Zoological Society said to Congress: "We will give you a nucleus herd of fifteen fine bisons, delivered on the ground, if you will make a fenced range of fourteen square miles in the Wichita National



Part of the group in the National Museum.

Buffalo Cow, Calf (four months old), and Yearling.

© *New York Zoological Society.*

American Bison in the New York Zoological Park.

Where the Millions Have Gone (1886).

The Zoological Park Idea.

About one-half the American bison herd, in the breeding range.

Muskox Group in the Oakland, Calif., Museum.

Designed and mounted by John Rowley. Background by Maurice C. Logan.
Accessories by Miss Susie W. Mott.

Mr. Phillips's Grizzly.

Forest in southwestern Oklahoma and maintain the herd."

"Done!" said Congress. "Here is fifteen thousand dollars for the fences and the buffalo warden's residence."

The fifteen animals were delivered there in 1907. Now the herd numbers one hundred and forty-six head of extra-fine bisons, and some are being given away to municipal zoos. Three went in December, 1923, to the new National Zoological Park at Mexico City.

Next in order the American Bison Society offered to Congress a gift herd of not fewer than twenty animals if Congress would appropriate forty thousand dollars to create the Montana National Bison Range of eighteen square miles on the Northern Pacific Railway sixty miles west of Missoula. It was a glorious situation; and the rich and succulent grass was a foot high. Congress accepted the offer and handsomely performed the governmental part. In 1909 the Bison Society raised ten thousand dollars, purchased thirty-seven fine and lusty bisons from the Conrad herd at Kalispell, Montana, and delivered them at the range. This herd never has lost a bison by sickness, and now numbers five hundred and fifty-nine head.

Next came the Wind Cave Park National herd in South Dakota, founded by the gift of fourteen animals from the New York Zoological Park herd. After that came the Niobrara herd.

The very first national bison herd was that started by the writer in the National Zoological Park at Washington in 1889. The largest one to-day is that in the Yellowstone National Park, founded through the efforts of "Buffalo" Jones. The latter was permanently located in Lamar Valley, but later on a show herd of large bulls was established

in a small range at the Mammoth Hot Springs, where it could be seen by all visitors to the park. The Yellowstone Park herd as a whole now contains about six hundred head.

Four years ago the size of that herd had reached such proportions that the superintendent of the park, Mr. Horace M. Albright, decided that a number of surplus bulls might be set free and permitted to join the all-wild herd of one hundred head. Accordingly a delegation was selected, driven out of the range gate and told to go in peace. It seemed as if they had heard the call of the wild, for they solemnly marched away into the forest-clad hills and disappeared.

In a short time those free bulls began to feel homesick. They found that liberty was not all that it was cracked up to be. The business of earning their own living all alone had its disadvantages. Back they all marched to the gate of the range and asked to be re-elected to membership. When driven away again they again returned, and finally it was admitted that those bulls either could not or would not hear the call of the wild.

This enables me to say (quite spitefully) to certain detractors of zoological parks, "I told you so! I told you that captive wild animals often are happier and better off in life than those that are wild and hourly compelled to struggle for food, water and safety."

No; there is no money to be made now in breeding buffaloes in captivity for sale or for meat. The cost of hay and help is too high. All the large zoological parks and gardens, and many small ones also, are well stocked, and the buffalo market is flat. There are hundreds and hundreds of bisons for sale in the West. Many have been sold in the East at one hundred dollars a head plus the

cost of the crates. A few big herds have sold at high prices, but now the demand is small, and such sales never again will occur. Now is the time for every American city worthy of a charter to spunk up and install in its most popular park a trio of bisons for public exhibition. The cost is trifling, and the people like to see them.

Yes; buffalo beef tastes and looks so much like domestic beef of the same age that no man can tell the difference by taste alone; but buffalo meat is not elegantly "marbled" with delicious marrowlike fat, as good domestic beef is—which is a loss in value.

Mr. M. S. Garretson, Secretary of the American Bison Society, has again made a census of the living bisons, this time as of January 1, 1924. It reveals a total of 14,369 head for all North America, of which 4,167 are captive in the United States, and 8,877 are in captivity in Canada. The number of calves born in 1923 was 2,491.

The intelligence and temperament of the great American bison are not to be ignored. Therein lies sometimes the difference between life and death. In the days of the great wild herds and the universal feeling of personal security that a vast mass of other animals always imparts the wild buffalo was a careless, unsuspicious and seemingly stupid animal, so easily approached and shot that there was little sport in hunting it. This engendered a reputation for natural stupidity that was not deserved. Toward the close of wild-herd life the last survivors learned that man is their deadly foe, and that every man seen either near or far must be fled from until he is miles behind. They learned to hide in bad-lands, foothills and mountains like hunted bear. Their eyesight proved to be good and keen.

Such were the bisons that we found in the bad-lands of Montana between the Yellowstone and the Missouri River in 1886. We got our quota of fine specimens for the United States National Museum, but believe me! we hunted and worked for them until we earned each one of them. They were as wild and wary as the wildest deer or mountain-sheep.

In temperament the average bison in the captive herd is quiet, well-behaved and safe for the keeper who does the feeding and tending. The exceptional one in twenty or thirty is a mean and vicious cow that just wants to hurt somebody, or a "bad" bull that is mean and murderous to his herd-mates. With all such individuals great caution must be practised, and the "bad" bull who keeps up his misdoings soon finds himself in a small private corral of his own, where the wicked cease from troubling.

But let no man take any unnecessary liberties with a full-grown bison. Any one of them may suddenly become savage and murderous and make an unprovoked attack on its best friend. Remember the sade fate of "Dick" Rock of Henry's Lake, Idaho, who was suddenly killed by a buffalo bull that he used to ride as a pastime.

XIX

THE RETREAT OF THE GRIZZLY BEAR

No other wild animal has done so much to promote wild-western thrills as the grizzly bear. In comparison with the traditional fearsomeness of "Old Ephraim" all other western animals seem tame. Lewis and Clark put him definitely on the map of the United States, and to-day we let him go from our fauna with outrageous reluctance. If I had a game preserve, or a ranch in any of the western mountains, I would maintain upon it at least one pair of wild grizzlies, or go broke.

Although the great American silver-tip grizzly has not yet "gone" from our country, he is "going, going." The brown California grizzly, however—somewhat larger than the silver-tip—now is believed to be quite extinct; and I make this statement in the hope that a number of California watch-dogs of the honor of the Golden State will make haste to prove that their woods are full of them.

Originally, and in fact not more than forty years ago, the Rocky Mountain region from Canada down to northern New Mexico and Arizona was stocked with grizzlies, quite sufficient for all practical purposes. From the eastern slope of the Rockies they spread out eastward into the buffalo plains for hundreds of miles. As late as 1886 I found a fine, fresh grizzly trail on the lower reach of the Musselshell River, in central Montana, a hundred miles to the eastward of the first foothills of the Rockies.

It was about 1888 that my old guide James McNaney and another daredevil cowpuncher, all unarmed, actually

roped two young grizzlies in the open bad-lands on Prairie Elk Creek, Montana, as related in Chapter VI, and choked them to death. In 1885, when Theodore Roosevelt was a ranchman on the Little Missouri, in western North Dakota, grizzly bears inhabited those bad-lands; and I think they formed the most easterly outpost of the species in the United States.

Six years ago Mr. J. A. McGuire of Denver, owner of *Outdoor Life,* and a great bear hunter for museum groups, became so alarmed at the disappearance of the grizzly—and other bears—from the United States that he began a determined campaign to stop the unjustifiable slaughter of bears of all species at all seasons. He demanded that bears be no longer regarded as "vermin" and left open to killing at all times, without limits. In short, Mr. McGuire demanded bag limits and closed seasons, and his contentions and demands were absolutely sensible and right. The chief opponent encountered was General Apathy; but by keeping everlastingly at it in a number of states even that opponent was overthrown. It was not until 1923 that New York State put her bears (all black) on a protected basis, with a short open season and a bag limit of one a year.

Fourteen states and Alaska now give closed seasons to their black-bear population, and five of them fix bag limits, but only Washington and Idaho give closed-season protection to their grizzlies. Is it not strange? Anyone would think that no state producing intelligent men and women would wish to see all their bears annihilated and their species totally disappear from their state fauna; but nations and states can be short-sighted fools, just the same as individuals.

No; the grizzly bear is not a bad destroyer of cattle and horses. His game-killing habits are few and far between, and as a stock-robber he is, and always has been, almost negligible. In the West many cattle killed by pumas, and afterward partly consumed by bears, are charged up to bears alone. Occasionally an individual grizzly has become a confirmed cattle-killer or horse-killer and thereby has invited a special dispensation of powder and lead; but such cases are the exception, not the rule. The grizzly no longer needs to be marked down for annihilation because of the losses he inflicts on cattle-owners or other stockmen. The logic of the grizzly and the ranchman is very simple. If it is fairly proved that a grizzly has become an unbearable nuisance on account of his cattle-killing, then the offender must be hunted down and killed; but all those who are not in the pest class should be treated as game animals, never poisoned and never trapped.

Mentally and temperamentally the grizzly is an animal of surpassing interest. With what we call "character" he is abundantly stocked. Going or coming, he is a personage to be reckoned with. He has many thoughts, and they have not been all cast in the same mould. Mr. William H. Wright of Spokane has written a whole book about the grizzly bear, and it is mighty interesting. Mr. Wright regards Old Ephraim as one of the wisest of all American animals. He says that "the grizzly bear far excels in cunning any other animal found throughout the Rocky Mountains, and for that matter he far excels them all combined." That last proposition is a large order; because the wolverine and the gray wolf also belong in the list of wise ones.

Once upon a time I saw on the far-distant summits of the Rocky Mountains of British Columbia the work of a grizzly bear whose intelligence challenged my admiration. He was a conservationist of a high order, and he made a cache of food that was a wonder. Having at his disposal the fresh carcasses of two big white mountain goats that had died and been skinned for a museum group, the bear promptly ate one and decided to save up the other against a rainy day.

Now, on that chaotic slope of clean and bare slide-rock hiding that carcass from jealous and hungry grizzlies, mountain lions, wolverines and golden eagles was no small undertaking. To bury it under chunks of slide-rock, in a hole dug in the slide-rock, was too difficult; so after careful thought the conserver of bear food selected a spot about two hundred feet distant, where there grew some very small stunted trees in soil that was covered with a heavy carpet of moss.

Close beside two larch saplings the bear dug a shallow hole, dragged the carcass to it, rolled it in and covered it with the excavated earth. Upon this he industriously raked together and piled up a wagonload of fresh earth, moss and green plants that he had uprooted for the occasion. On the ground the cache was about seven by nine feet in size, and the surrounding earth and moss had been torn up on a space about nineteen by twenty-eight feet. On the downhill side the mound was four feet high, and on the upper side about two feet.

Of course another grizzly in quest of food—as grizzlies usually are—would have made short work of that cache; but we know that it did protect the meat from the golden eagles; and the one wolverine that was attracted to that

spot either ignored or failed to see the cache and devoted his attention to the remains of goat No. 1.

In the days of the muzzle-loading squirrel rifle, with its pitifully small charge of black powder and a bullet like a pea, the grizzly was unafraid of man and often aggressive. When encountered suddenly and at close quarters he often charged and either scared the pioneer out of the country or did personal damage to him. The awful raking blow of his paw was more to be dreaded than his teeth; for the grizzly always strikes at a man's head or face and sometimes tears off the front half of a man's scalp until it hangs down over his eyes. The story of an incident of that very kind has just been brought out of the Wrangel Mountains of Alaska by Mr. John B. Burnham; and the end of it is that the dauntless victim lifted his own scalp until he could see from under it, dragged his rifle out of its scabbard and killed the bear before it succeeded in killing his partner.

Nine times out of ten the grizzly bear who sees or smells a man runs from him fast and far. Perhaps once out of ten times the bear is cornered or thinks he is cornered, and then he assumes the offensive and fights. That is strictly self defense and within the law. The danger in travelling through grizzly-bear country is not that a grizzly will come from afar to attack, but rather that a bear met at close quarters will start in at once to fight in what really is to him self defense. In such cases the lightning-quick and deadly blows and the bites do fearful execution in a few seconds of time. But let the grizzly once see you from a distance, or smell your outfit, and a jack rabbit will not hunt the tall timber any more quickly than he. And the grizzly is wise. He has learned that

teeth and claws are no match whatever for the deadly repeating high-power rifle that can kill an animal at half a mile without the slightest risk or inconvenience to the user.

But, if the grizzly is quick to learn new danger and run from it, equally swift is he to learn the meaning of protection and take advantage of it. In a very short time after the Yellowstone National Park became a game sanctuary the grizzlies found it out and ever since that day they have enjoyed it to the utmost. No bears in America are more famous than those who daily and nightly visit the garbage dumping-ground, of the Mammoth Hot Springs and Canyon Hotels. The black bears have become as tame and trustful as so many gray squirrels, but the grizzlies are watchfully reserved. Whereas the blacks approach the feeding place in the broad light of day, the grizzlies emerge from the adjacent forest only at nightfall and will not tolerate anything like familiarity.

But worse remains to be told. As far back as ten years ago or even more the grizzlies began to break the truce of the park. They began to raid and rob "chuck wagons" of their bacon and hams. Being forbidden to carry firearms, the defenseless tourists could do nothing but file protests—with the usual results of protests that are not backed up by guns and men.

Finally, in 1917, a bad grizzly made a vicious and determined attack upon Mr. Ned Frost, the Cody guide, and his companion as they lay asleep under their wagon. The night was cold, and the men were well provided with bed clothing. It was this fortunate circumstance that saved their lives. With the first attack of the bear the men clung for dear life to their blankets and thick cotton comfortables, meanwhile yelling lustily. The bear dragged

them about and bit and clawed them savagely, but the bedding saved them until the bear desisted and went away. Mr. Frost was many days in recovering from his wounds.

I understand that since that occurrence enough of the bad grizzlies of the Park have been disciplined to throw a wholesome respect for man into the remainder, and now tourists in the Park are again safe from attacks.

Any man who will say that bears do not think and cannot reason from an observed cause to its probable effect surely never has observed bears, either in their wild haunts or in captivity. Thanks to the high-grade minds of the grizzly bears, the members of their group have spread over a vast area of the continent of North America and have survived and thriven in a great variety of lands and climates. The original stock crossed from Asia to Alaska on the Bering Bridge—but man has forgotten the date of their arrival.

From the shaven, wind-swept tundras of Alaska they ranged due east clear into the Barren-Grounds east of Great Bear Lake. Southward they followed the coast and the Rocky Mountains to British Columbia, to the whole western United States and the eastern edges of the Great Plains.

Not satisfied with Arizona, New Mexico and Texas, they went on down along the Sierra Madre extensions of the Rockies for probably five hundred miles into Mexico! At that extreme the grizzlies often wore coats that may fairly be described as dull golden yellow, and right beautiful some of them were. It is fairly certain that many grizzlies are living in Chihuahua and Sonora to-day.

To me, however, the strangest spectacle of all is the Barren-Ground grizzly living and thriving all the way

from the eastern edge of northern Alaska to a point at least half way between Great Bear Lake and Chesterfield Inlet.

Many species and subspecies of grizzly bears have been described and named, but to enumerate them here or to try to describe them would hopelessly confuse both the writer and the reader. Their specific differences are observable chiefly in their skulls. By many naturalists it is believed that in Alaska where the grizzlies and big brown bears meet they interbreed.

In view of the rapid and inexorable disappearance of the grizzly bear from the United States, everywhere except in Yellowstone Park, it is high time to take an inventory and see how much stock we have left. In order to secure definite information from the very best source I asked Mr. J. A. McGuire to name for me all the places in our country in which it would be worth while for a sportsman to outfit and go hunting for grizzly bears. The answer was definite, categorical and illuminating. Mr. McGuire said:

"I doubt if there are more than two or three states in the Union (and in a very restricted area in each of those) wherein it would pay a man to outfit and hunt especially for grizzly bears. Those are Wyoming, Montana and Idaho, mentioned in the order of their importance as grizzly-bear states. In Wyoming the best localities are: the North and South Forks of the Shoshone River and their tributaries east of Yellowstone Park, the upper Yellowstone, upper Buffalo Forks, upper Gros Ventre and other streams south and east of Yellowstone Park.

"In Montana the best place for grizzlies at present is on the South Fork of the Flathead River, southeast of the Flathead Indian Reservation, and on Hell Roaring and

Copyright, 1902, *by F. C. Wolcott.*

A Grizzly Bear at Home.

Photographed in the mountains of western Wyoming, by F. C. Wolcott. The bear was enticed by a bait to within thirty feet of the camera, and taken by flashlight.

From a photograph by W. T. Hornaday.

The Author's Grizzly Bear.

Grizzly creeks, about seventy-five miles north of Yellowstone Park. The Idaho fields for them are in the Upper Priest River country, northern Idaho, and on Snake River near Spencer.

"In other states they occur—but very rarely, I think—in the following sections: In Colorado, in the ranges of the south and west of Middle Park; also in the southern part of the state, to the southeast, south and southwest of Durango. In Arizona, in the district around Flagstaff and the Grand Canyon. In New Mexico Scott Teague recently saw a grizzly track on a hunting trip near Taos. There may be a solitary grizzly here and there in Oregon and Washington, but I have not heard of any in either of those states for a good many years."

Northward of the United States the case of the grizzly is much better. There are many spots in British Columbia, western Alberta, Yukon Territory and eastern Alaska wherein grizzlies are fairly common, as bears are commonly regarded. The Elk River and Bull River mountains of southeastern British Columbia and the country north of Telegraph Creek on the Stikine River have furnished glorious grizzly-bear hunting. A few of the sportsmen who have gone to British Columbia and Alaska have gone again and again and shot grizzlies upon grizzlies, when as humane conservationists they should have stopped. I cannot understand why seemingly sane and humane men love to shed great quantities of blood and love to pile up great mounds of dead grizzlies, sheep, goats, moose and deer. But some of them seem never satisfied. About two of each species are quite enough for me except when I am hunting to fill empty cases in museums.

Now, however, the time has come when states and

provinces having very few bears of any kind remaining to their faunal credit should stop all bear shooting until the supply becomes satisfactory; and the states with numerous grizzlies and blacks should establish open and closed seasons and bag limits and stop all trapping of bears. The bag limit should be one grizzly and one black bear a season, and no more—except for a sure-enough *bona-fide* museum group, like the fine grizzly group in the Denver Museum contributed by Mr. McGuire.

I am always sorry to see a state fauna lose forever the romantic flavor of the grizzly bear; but many have lost it, and more are on the way. There are at least two places in the West wherein grizzly bears will remain for a long period. They are Yellowstone Park and Glacier Park. From all the free hunting-grounds in the United States without a single exception the grizzly soon will disappear. The tens of thousands of sportsmen, guides, automobiles and fat check-books will hunt them down and wipe them out. Look at the latest "horrible example":

To the small city of Williamsport, Pennsylvania, six sportsmen returned on November 6, 1923, from killing big game in the Cassiar Mountains of British Columbia, via Telegraph Creek. At the same time five sportsmen from other places also shipped their trophies to Williamsport, to be mounted there. Says the local newspaper:

"The complete collection consists of 11 moose, 22 caribou, 24 Stone and Fannin sheep, 22 mountain goats, 24 bears and a number of specimens of smaller game. Twenty of the bears are grizzlies."

One hundred and three big animals for two hunting-parties! No wonder the big game of North America is going out!

XX

THE TRUE STATUS OF THE MOUNTAIN LION

In the East and South the puma has almost slipped out of the public eye. That is because the species is so far gone that it no longer figures in the despatches. A stray "occasional" is heard from in Florida, but down there they grow so small that there is no temptation to buy them for zoological park purposes. The days wherein the deadly "panther" plagued the hardy settler of New England and New York have passed away. In the illimitable mountain forests of Pennsylvania I think that an occasional puma still is found, but by accident rather than by deliberate hunting.

In the states of the Far West the status of the puma is different. There it is a going concern. It is called the "mountain lion," and in numbers it is by no means insignificant. When "Buffalo" Jones was superintendent of the wild animals of Yellowstone Park he complained bitterly of the way the mountain lions were destroying elk. He said that at the mouth of one den he found the remains of nine elk calves.

The puma is the most widely distributed of all the large cats of the Western Hemisphere. It roams all the way from the Atlantic to the Pacific and from British Columbia to Patagonia. Several species and subspecies are recognized by the few zoologists who have closely studied the animal, but the specific differences are slight. All the specimens that we have had from Venezuela, Colombia, Florida and Mexico have been much smaller than the big

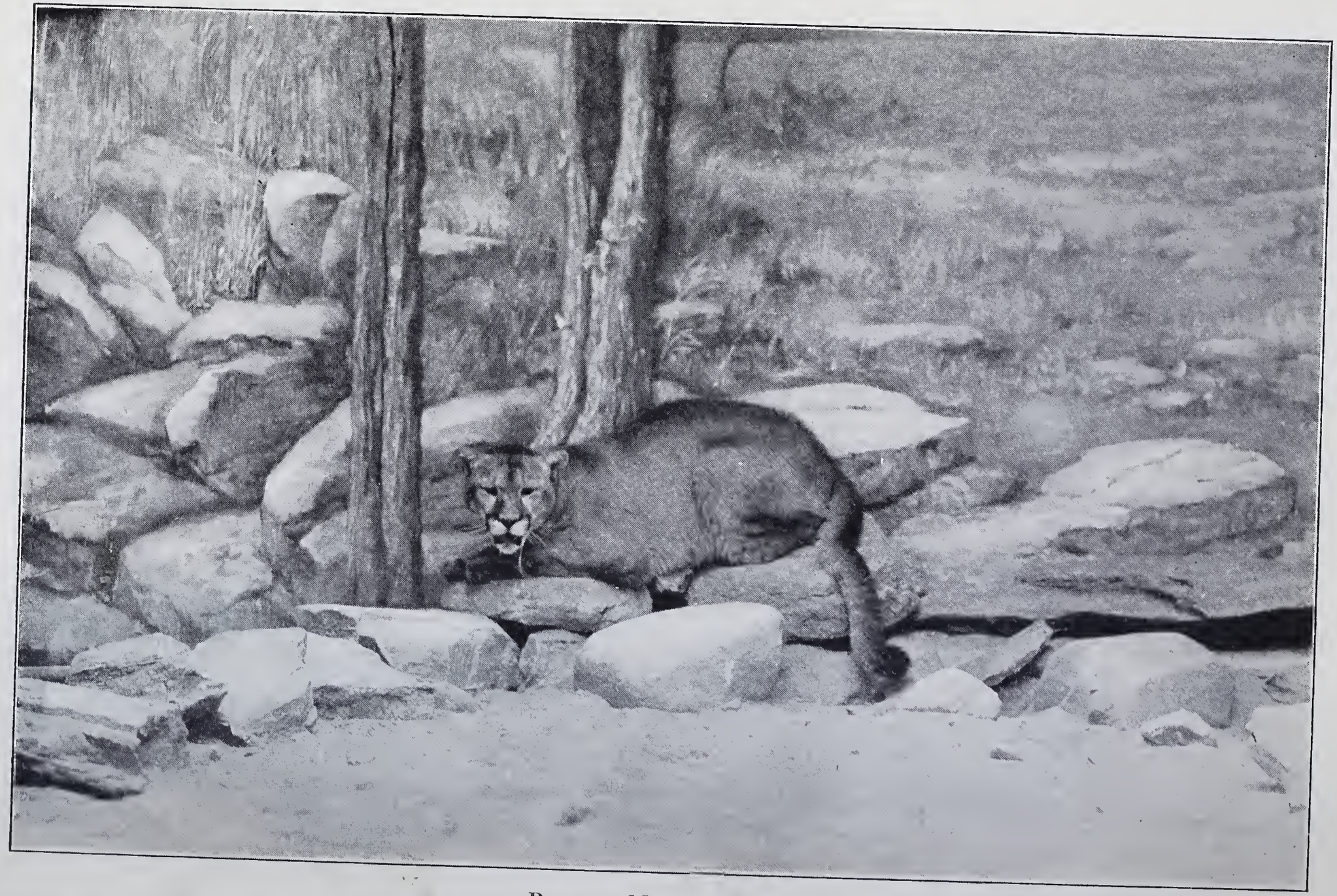
brutes from Colorado, Wyoming and points west. I think that for length the eight-foot specimen shot in Colorado by the late President Roosevelt represents high-water mark. I warn all persons against taking too seriously the measurements of skins. After having seen an Alaskan brown bear skin stretched and tanned about three feet beyond its legal length I am shy of all skin measurements.

The puma is a lithe, thin-bodied, flat-sided animal, tall for its weight and brownish-drab in color. Of all the large cats of the world it is by far the best tree-climber. A large and perfect specimen is a handsome animal, and its face is really beautiful. The length and thickness of the tail add much to the appearance of the animal. Colonel Roosevelt's finest specimen, killed on February 14, 1901, near Meeker, Colorado, weighed two hundred and twenty-seven pounds, and its length before skinning was precisely eight feet.

In some zoological gardens the bears, lions and tigers have been surrounded with artificial rocks in imposing quantities to represent their "natural haunts," despite the well-known fact that lions and tigers rarely, if ever, inhabit such intensely rocky situations. The grizzly bear is virtually the only big carnivore that ever lives in such surroundings. The mountain lion, however, is a real rock-lover, and when it can find rock cliffs with holes and caverns in them it gladly dens up in the most inaccessible "hole-in-the-wall" that it can find. In the southern states and in all other countries destitute of rocky mountains and sierras it hides in the densest brush and jungle that is available.

In the Rocky Mountains of Colorado, Wyoming and Arizona, where it is possible to ride on horseback after

A Mountain Lion.



Puma, or Mountain Lion.

hounds, it is great sport to hunt mountain lions. The dogs find the lions, chase them until they climb trees and then hold them at bay in the pines and spruces until the hunters come up and shoot the lions down.

In 1907, when Mr. Zane Grey went with "Buffalo" Jones to the Kaibab Forest, which comes down to the north rim of the Grand Canyon, Mr. Jones gave a flavor to mountain lion hunting that never before had been imparted to it. Instead of shooting the treed lion he boldly and cheerfully climbed up to the level of the bayed animal and either lassoed it, or pushed it off its perch with a long pole. Each fallen animal was eventually roped by Colonel Jones and the waiting cowboys and stretched out upon the pine needles. With skill and care the unterrified Jones snipped off the sharp ends of its claws, buckled upon its neck a leather collar and with a chain about eight feet long tied the captive to a tree.

Since 1916 the government hunters have killed seventy lions in the Kaibab Forest, which has made a mighty dent in that situation. Mr. Grey in one of his books gives Colonel Jones as his authority for this curious statement:

"In sex there are about five female lions to one male. This is caused by the jealous and vicious disposition of the male. It is a fact that old Toms kill every young lion they can catch. Both males and females of the litter suffer alike until after weaning-time, and then only the males. In this matter wise animal logic is displayed by the Toms."

And this is recorded by Mr. Grey concerning the hunting habits of the mountain lion:

"A cougar seldom pursues his quarry after he has leaped and missed, either from disgust at failure or knowledge that a second attempt would be futile. [This is also

true of the cheetah.] The animal making the easiest prey for the cougar is the elk. About every other elk attacked falls a victim. Deer are more fortunate; the ratio is one dead to five leaped at. The antelope, living on the lowlands or upland meadows, escapes nine times out of ten; and the mountain-sheep, or bighorn, seldom falls to the onslaughts of his enemy."

Pumas, bears and lynxes love the shelter of the rugged, weird and picturesque bad-lands of Montana and Wyoming and feed on the mule-deer that equally enjoy those regions. As related elsewhere, in the wonderful bad-lands of Snow Creek, Montana, I saw my comrade Mr. Laton A. Huffman kill a full-grown mule-deer buck whose antlers, head and body told most plainly the story of an attack by a mountain lion. The main beam of one antler had been broken off half-way up; one ear had been badly torn; there was a twelve-inch scar from a bite on the back of the neck, and the hind quarters had been scratched. The attack must have been made by an immature puma, or the deer could hardly have escaped.

For many years the puma was dreaded and feared by timid frontiersmen far beyond anything its courage in attacking men warranted. Of course it is the wise and correct thing to be afraid of an animal big enough and bold enough to kill deer and elk; for with all animals big enough and strong enough to kill us we are wise in taking no chances. The puma has a habit of uttering in the mating season blood-curdling screams, and those screams are quite enough to attach the white badge of fear to any hearer. Let there be no question about the scream of the puma. I have heard it myself a score of times in the mating season, and so have thousands of other persons.

I have not searched the records in efforts to ascertain whether in pioneer days in the East any pumas ever attacked men or women, but I must say that I know of no cases. In recent times three thoroughly authenticated instances have occurred. The first record is of two schoolboys in northern California, who were out picnicking with their teacher on the bank of an almost-dry stream. In the bed of the stream the boys were wantonly attacked by a vicious puma, and before the teacher succeeded in frightening and driving the beast away she was so severely injured that a little later on she died from the wounds.

The second case occurred at Cowichan Lake, British Columbia. On September 3, 1916, Doreen Ashburnham, an eleven-year-old English girl, and Anthony Farrar, eight years old, and also English, each carrying a riding-bridle, left home to go three-quarters of a mile to a pasture to catch and bring in their ponies. Half a mile from the home ranch a mountain lion suddenly came round an angle in the trail. At once the animal sprang upon Doreen, knocked her face-down upon the trail, and crouched upon her back for a moment before proceeding to maul her. Instead of running away in terror, Anthony, who was London bred, cried out, "Hold still, Doreen! I have a plan!" and forthwith jumped from a bush at the puma, striking it with his bridle as hard as he could.

At that the puma left Doreen and sprang upon Anthony. Anthony said: "We both fought him, and he tore my nose and cheek with his paw and forced me to the ground on my face, and then he tore my back and bit me on the shoulder and tore my scalp. While he remained on me Doreen attacked him with her riding-bridle and her fists, and put her arm into his mouth to prevent him biting

me. It bit her through the right arm above the elbow, and she fought it with her fists and the bridle. The panther slunk away finally, and we both ran home. We were both covered with blood."

It took forty-six stitches to sew up Anthony's wounds, and he was more than six weeks in the hospital at Duncan, B. C. The puma that made the attack was promptly found and killed by Charles Marc. Its weight was "about seventy-five pounds," and one eye was afflicted with a cataract. Thanks to the interest of Mr. John R. Green, a barrister of Victoria, who took all the testimony in this case, the King of England awarded to each of the gallant children the Albert Medal. Mr. Green wrote me in 1918: "One dog at Duncan recently treed his hundredth panther successfully."

In story-papers and in books the puma long has been a sadly overworked animal, with a right to be peevish at being dragged out of bed at all hours of the night to be put through its paces to make copy for the story-tellers. Hundreds of thrilling stories of imaginary adventures with pumas have been written and printed, and hundreds more will be made up; but, so far as people are concerned, this animal is in reality no more to be dreaded than a savage dog that is kept by a mean master. It appears to be true, however, that occasionally it follows benighted travellers or hunters out of what is believed to be curiosity. It preys upon every kind of living creature that can be killed and eaten except man, and sometimes even makes the tactical error of attacking a porcupine. A starving puma once was found with its mouth and throat so obstructed by porcupine quills that it could not eat.

Mr. W. C. Henderson, acting-chief of the United States Biological Survey of the Department of Agriculture, has just now caused to be furnished me for this article some extremely interesting figures. They were compiled jointly by the men of the Biological Survey and the United States Forest Service, and among other things they show the thorough acquaintance of those organizations with the big-game situation in the national forests. The first item is this statement of the number of mountain lions killed as pests to stock-growers by Biological Survey hunters and colaborers, state and private, in the states named, from July 1, 1915, to June 30, 1923, a period of eight years: Arizona, 392; California, 30; Colorado, 55; Idaho, 10; Montana, 62; Nevada, 26; New Mexico, 247; Oregon, 53; Texas, 16; Utah, 81; Washington, 12; Wyoming, 15. Total, 999.

The rangers and other officers of the Forest Service have displayed great diligence and enterprise in making careful estimates of the number of mountain lions believed now to inhabit the many national forests of the six Rocky Mountain states. Figures are given for each forest, and the summaries by states are as follows: Colorado, 490; Idaho, 314; Montana, 1,012; New Mexico, 100; South Dakota, 15; Wyoming, 71. Total, 2,002.

The warfare by the national government and the states to destroy the mountain lions that are so fearfully destructive to cattle, sheep, young horses, elk, deer and other game is continuous. The Department of Agriculture keeps in the field a large force of trained and expert pest destroyers; and each stock-growing state in the mountain lion area pays substantial rewards for dead lions. I think it is the estimate of the government experts that

where deer are plentiful a full-grown mountain lion will, on the average, kill two of them per week.

The official mountain-lion hunter of California says that it is the common habit of the puma to kill a sheep or a steer, eat a small part of it, move on several miles and leave the black bear to finish eating the meat and to be blamed by the stockman for the killing and be hated accordingly. For a long time I have been trying to make the public understand that even wild bears have their trials.

PART III

MASTERPIECES IN WILD-ANIMAL COMPOSITION

XXI

MASTERPIECES OF AMERICAN TAXIDERMY

THE rise of American taxidermy to a level with the other fine arts thus far is a chapter of unwritten history. It is probable that not more than a score of persons now living know the real story of the Society of American Taxidermists, and the revolution that it wrought. It would be utterly inadequate to write of the masterpieces of American taxidermy without setting forth at least an outline of the history that they represent. A few members of the youngest generation of workers, snugly ensconced in stone palaces of peace and plenty, have talked learnedly of the "new school" of taxidermy without mentioning the men who toiled in laying the foundations and in erecting half the walls of that "school." I am told that to-day there are taxidermists who do not like being called anything less than "sculptors."

We opine that never since art was born did any branch of it, or any twig of it, ever receive so swift and forceful an upward thrust as taxidermy received in America from 1879 to 1890. From 1880 to 1885 a small group of young men spent all their savings, and also broke their backs, for the cause represented by the small but vigorous "S. A. T." They have lived to see all their dreams come true, and they have lived to contemplate with outrageous pride and satisfaction a great cycle of results in the class yclept "I-told-you-so."

It cannot be said, in hackneyed phrase, that "they builded better than they knew," for with boundless com-

placency they believed that they were making history and laying the foundations of a real uplift. Fortunately, in that belief they were not alone, or unaided; for everybody helped!

In 1879 there were in America a few very good bird taxidermsits, but no amount of bush-beating could scare out even one good mammal mounter. All "animals," big and little, were "stuffed"—literally—with straw, tow, cotton, sawdust, or worse. So far as we are aware, no museum maintained a whole taxidermist, save the new National, at Washington, where Edward Marshall mounted birds. Most other museums were supplied by independent workers and the work of the two or three foreign taxidermists at Ward's Natural Science Establishment at Rochester.

The idea of scientific museum groups of large mammals, with natural or artificial accessories, was born in a forest reeking with live orang-utans and gibbons on the Sadong River, Borneo, in the glorious month of November, 1878. It was there that the first large mammal group ever produced in America was thought out and determined upon. A year later it took visible form in "A Fight in the Tree-Tops," mounted at Ward's, in 1879, and first exhibited (in 1880) at the Saratoga meeting of the American Association for the Advancement of Science. There it was seen by a young and daring museum-builder named G. Brown Goode, assistant director of the United States National Museum. In 1883 that group was acquired by the National Museum, and when we saw it there in June, 1920, forty years after, it was in so good a state of preservation that it gave us a thrill of satisfaction. Yes; even forty years after we are not ashamed of it; for it is suffi-

ciently near to the standards of to-day to be entitled to a place in the sun.

The Society of American Taxidermists, for the advancement and development of taxidermy to a place with the fine arts, was organized at Rochester on March 24, 1880, and to this day I marvel at the degree of animal intelligence, and the universal good fellowship, that was displayed by its members.

The absurd jealousies and closet "secrets" in methods that previously existed were all swept aside. All its members laid their best methods wide open upon the table, for the benefit of all. Among the founders of the society were Frederic S. Webster, Frederic A. Lucas (now director of the American Museum in New York), J. William Critchley, Jules F. D. Bailly, Thomas W. Fraine, F. W. Staebner, John Martens, and the writer. There were twoscore of widely scattered men and women who actively participated to the extent of their ability. Of these, Mr. and Mrs. George H. Hedley (Medina), David Bruce (Lockport), Fred T. Jencks and J. M. Southwick (Providence), P. W. Aldrich (Boston), and Thos. Rowland (New York) are gratefully remembered for their support and co-operation. In 1883, William Palmer, Edward Marshall, and L. M. McCormick joined from Washington.

Three very systematic competitive exhibitions were held. The first was at Rochester, in December, 1880; the second at Boston, in December, 1881, and the third (and last) took its place in history at Lyric Hall, New York, April 30 to May 5, 1883. The judges of those exhibitions were Doctor J. A. Allen, Doctor J. B. Holder, Daniel C. Beard, J. Carter Beard, W. E. D. Scott, Professor J. W.

P. Jencks, and Thomas H. Hinckley. As one-half the expenses of the New York show, a "model millionaire" gave the generous and sorely needed sum of five hundred dollars. So far as the writer knows, that was Andrew Carnegie's very first gift to museology. And more than that, Mr. Carnegie actually permitted the society to elect him its treasurer for the year, 1883, by which the society enjoyed the prestige of having a financial backer known to be worth the fabulous sum of fifteen *million* dollars! In view of subsequent occurrences in museum development, we opine that our great and good friend always regarded with satisfaction the outcome of that very hazardous venture.

The irrepressible S. A. T. promptly received the approval and encouragement of the leading vertebrate zoologists of America, notably Professor Henry A. Ward, Doctor J. A. Allen, Doctor J. B. Holder, Doctor G. Brown Goode, Doctor G. E. Manigault, and others. Our acquaintance with Daniel Carter Beard, of the Boy Scouts of America, began at Lyric Hall on May 3, 1883, when he acted as one of the judges of that last and best exhibition.

From start to finish the leading men of the Society of Taxidermists vigorously advocated the group idea as a promoter of new life and interest in museums. Many excellent groups of birds, mammals, and reptiles were toilsomely wrought out and shown in the three exhibitions, and the great possibilities in groups as scientific and legitimate museum exhibits were insisted upon.

It is now indisputable history that those competitive exhibitions, the lively public appreciation of artistic effort, and the cordial and constant exchange of methods and

ideas, wrought in five short years a complete revolution in taxidermic methods and results. For example, it quickly became apparent that the days of mediæval straw-and-tow "stuffing" were forever over and done. It was conceded that the external anatomy of animals no longer could be ignored.

In 1882, at the National Museum, the writer developed the clay-covered hollow-statue method for the treatment of large mammals. The African elephant "Mungo" was its first beneficiary. If we had him to do over again to-day, we could not improve upon the original edition, and we suspect that it is not every "sculptor-taxidermist" who is destined to view with smug complacency his work on large mammals forty years after its perpetration.

One more word of early history is all that the traffic will stand. It concerns the first actual adoptions of the group idea in two great museums.

As a practical museum-builder Doctor G. Brown Goode was a far-seeing and daring progressive. Whenever he saw the possibility of a good result, there was literally nothing that he was afraid to try out. The splendid pace that he set in museum development and administration made, throughout all America, a tremendous impression. It has had the effect of shoving our American museums far ahead of their rivals in Europe. But alas! how many of our younger museum men to-day remember this fact, and openly offer a tablet or a tribute to the memory of G. Brown Goode?

In 1886 the writer collected twenty-four American bison skins and skeletons in central Montana, for the National Museum, and others. In 1887 he proposed to Doctor Goode a group of bison, with Montana accessories,

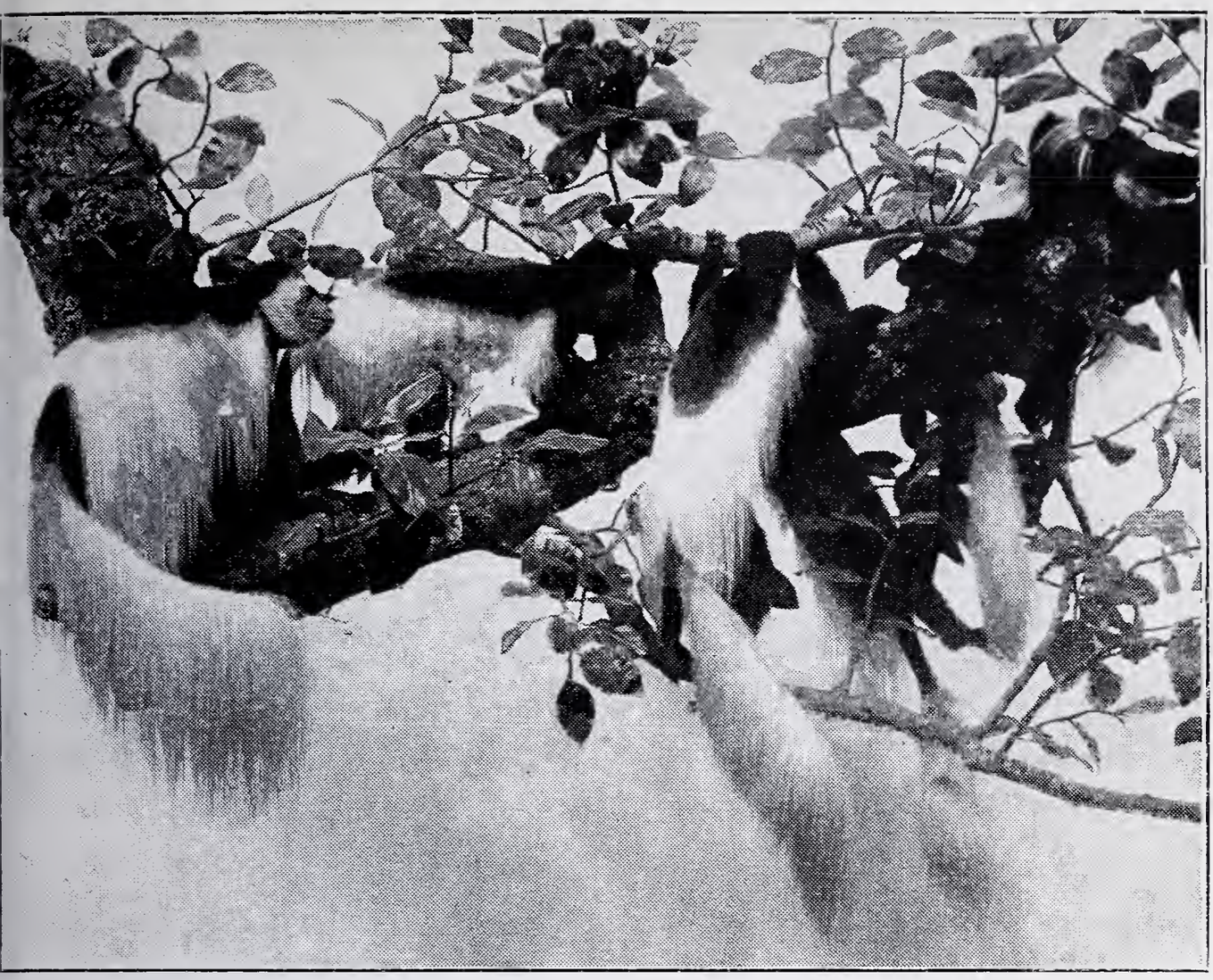
that would do justice to the most conspicuous mammal species of all America. A sketch was submitted and the cost was calculated. The latter looked enormous. After a comprehensive survey of the idea, and a heavy discounting of prospects and promises regarding the final result, he said: "Go ahead!"

In the fall of 1887 the group was "unveiled," for better or for worse, in the honorable centre of the Hall of Mammals. In about two hours the entire museum staff had inspected and approved it, and the future of the group idea was secure. Immediately groups of moose, sheep, goat, and antelope were ordered to be produced "forthwith."

To-day the zoological museums of the United States are developing large "habitat groups" of mammals and birds to the utmost limits of the space available for them. The two elder-brother museums of Washington and New York, which started first, are in the lead, and at the extreme northern side of the chapter of museum-building in America we see the University of Minnesota developing groups at the rate of two or more per year, even before the building to contain them has been erected.

The drawing power of group exhibits is thoroughly conceded by all persons in interest, and their value in educating the public is entirely beyond the domain of argument. Not only do they bring the charms of wild nature within daily reach of the cribbed and confined millions of city dwellers who cannot go afield, but they are permanent. In comparison with their cumulative value their cost is utterly trifling.

It is the rule to furnish each group, as far as possible, with natural accessories, taken from the haunts of the ani-

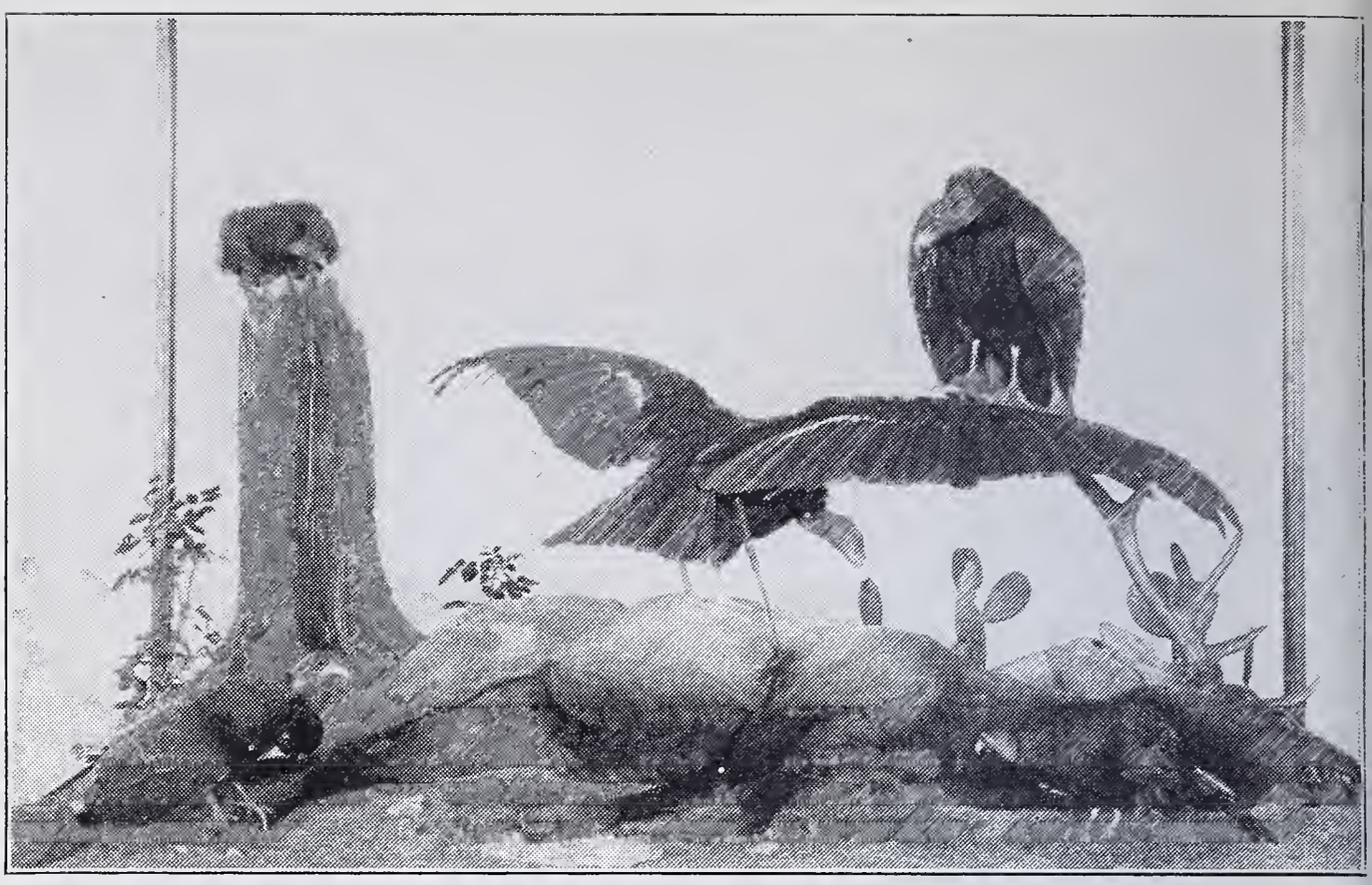


Colobus Monkeys, United States National Museum.

Mounted by Frederic S. Webster, 1888.

Moose in the Field Museum, Chicago.

Mounted by Julius Friesser.



Condors and Turkey Vultures and a Dead Elk, Carnegie Museum, Pittsburgh.

Designed and mounted by Frederic S. Webster.

California Condor, Field Museum of Natural History.

Mounted by Julius Friesser. Background by Charles A. Corwin.

mals displayed, regardless of labor and expense. This fashion was set in 1887, when we brought on from Miles City, Montana, enough actual sods of curly buffalo-grass, and enough clumps of real sage-brush, to cover the entire bit of trail-marked buffalo range on which our group was installed. A Sioux Indian visitor once said to his friends: "I know that they *do* walk around in there at night, for there are their tracks, in the mud by the water-hole and on the trail."

Trees and branches are easily transported and set up, but when leaves are to be shown, and living plants, they must be made artificially. They are cast in wax. Most cacti, also, must be artificially made. The desert antelope group in the Brooklyn Museum shows wonderful work in the artificial reproduction of the remarkable cacti and other strange plant products of the Sonoran desert as it is seen in southern Arizona.

It is impossible to appreciate too highly the thought, the labor, and the expense that have been lavished upon these efforts to bring wild mammals and birds to the very doors of the millions of city dwellers who cannot travel all over the world, and see all manner of wild life in its haunts.

This last thought reminds me to salute the toiling museum directors and curators who by hook and by crook, and at times by great labor, have found the money, the space, and the men that, taken in conjunction, make habitat groups possible.

The United States National Museum, a pioneer in group-making, now contains about all the large groups of mammals that can be displayed until the Freer Gallery of paintings goes out, and enters its own special building to remain for aye. The men represented by them are,

by seniority, the writer, Joseph Palmer, F. S. Webster, William Palmer, George B. Turner, and James L. Clark. The species represented are the bison, moose, pronghorn, mountain-sheep, mountain goat, musk-ox, coyote, and in the Roosevelt collection the lion, zebra, white rhinoceros, Coke hartbeest, and oryx antelope.

Of the work of George B. Turner, two groups in the Roosevelt collection claim first attention. The African buffalo group is important, and well executed, but the coarse physical fibre and overpowering bulk of that ungainly species insensibly demands a mental effort in its acceptance as a real work of art, as it truly is. On the other hand, Mr. Turner's group of Grevy zebras is a fine composition, and clearly is entitled to a place in the first rank of habitat groups. It represents a peaceful and prosperous herd, in its desert home, where the wicked sometimes cease from troubling and the weary wild animals occasionally are at rest.

Mr. James L. Clark's group of three Rooseveltian white rhinoceroses is a grand piece of work, and well worthy of reproduction here, but for the fact that Clark's group of Coke hartbeests is far more pleasing as a work of taxidermic art. The smaller size of the animals contributes artistic values in poses and grouping that are out of the question in any rhinoceros group installed in a case that really is too small for it, and the universal verdict is that the hartbeests stand forth as Mr. Clark's most artistic creation. And really, the latter is a realistic translation from the wild veldt to the museum hall, without the aid of a painted landscape background and under the handicap of four visible sides. All the National Museum groups save two are four-sided exhibits, with all the loss in

perspective and color which that hard condition invariably entails.

The American Museum of Natural History was the first cash patron of the "artistic-group" idea.

In 1881 it purchased from Ward's Natural Science Establishment, with funds supplied by Mr. Robert Colgate, the second group of orangs mounted by the writer, entitled "The Orang-Utan at Home." That group represents a peaceful family gathering in a Bornean tree-top, where the delectable durian is being eaten. Of course that effect is now to be seen in the American Museum, and from its excellent state of preservation it seems fitted to survive several times forty years more.

The completion of the American bison group in the National Museum, in 1887, attracted the attention of Mr. Morris K. Jesup, who took an early opportunity to inspect it. That visit presently resulted in the engagement of the author's assistant, Jenness Richardson (Sr.)—a genuine artist—as the first chief taxidermist of the American Museum. In 1880 Mr. Richardson mounted the American bison group that down to the present day has occupied the most commanding position there, and it is an unqualified masterpiece.

Mr. Richardson died in 1883, and his assistant and successor, John Rowley, produced the fine moose group that to-day is one of the most conspicuous of the many mammal groups of the American Museum. Aside from the excellence of the animals, the observer is profoundly impressed by the graphic representation, by means of natural accessories from the depths of the Maine woods, of the deep layer of moss-covered débris on the floor of the forest. It is probable that few of the observers of museum groups

even half way appreciate the many-sided skill, the labor, and the expense involved in the production of the elaborate accessories that are necessary to bring the haunts of wild animals to the museum hall and within the visual range of the visitor. Sometimes the accessories represent twenty-five per cent of the total achievement, but they are worth all they cost.

There is one medium sized group in the American Museum that is an artistic gem. It is the group of fur seals mounted by Frederick Blaschke, and provided with a landscape background by that consummate boreal artist, Albert Operti. Director Lucas contemplates a larger group of fur-seals, but the present group is a good one to keep the wolf from the door for an indefinite period.

The beautiful bird groups of the American Museum long have been celebrated, but the bird groups of America form a subject quite apart.

There are occasions wherein the home surroundings of a wild animal are quite as interesting as the animal itself. Such is the case with the mountain goat in British Columbia, the mountain-sheep of Pinacate, and the prong-horned antelope of the Sonoran Desert in Arizona.

In no museum group of my acquaintance is the home atmosphere and the local color of more thrilling interest than in the prong-horned antelope group of the Brooklyn Institute Museum. Its really wonderful setting of desert vegetation and desert landscape gives the visitor an actual section out of a veritable wonderland. I cannot imagine an intelligent mind that can view that composition, even in a picture, without a thrill. A doubting Thomas who has not seen the desert prong-horn amid its choyas, ocatillas, bisnagas, and giant cacti might be tempted to say,

"There never was such a combination"; but having seen it, we believe.

Now, there are a very few museum groups in which the accessories preponderate over the zoological specimens in a proportion of about nine to one. In two groups that could be cited, the vertebrates are so overwhelmed by their setting that they sink to the level of trifling accessories, difficult to locate. That is bad art. A human portrait that shows more of furniture and fixtures than of face and figure jars the divine sense of proportion, and mounted groups are to be judged by the same rules.

In the desert group mentioned above, the accessories represent quite as much effort, achievement, and real art as the zoological specimens themselves, and they render their separate recognition imperative. Many museum labels need to give, and do give, separate credit for the accessory work. The honors due for the Brooklyn desert-antelope groups must be doubled in order to be divided between the taxidermist and the plant maker who produced the truly wonderful choyas, opuntias, palo verdes, and ocatillas. If you cannot make a journey to southern Arizona, between Tucson and Wall's Well, then go to Brooklyn and see the next best thing.

The Carnegie Museum at Pittsburgh, of which Doctor W. J. Holland is the master-builder, contains many zoological prizes of high value. It scored for all America the first white rhinoceros, the first inland white bear, the first jaguar group, and the first reticulated giraffe.

When I observed that Chief Taxidermist R. H. Santens was committed to the creation of a four-sided jaguar group without a background, I was outrageously skeptical regarding the result of that hazardous experi-

ment. In fact, it seemed like attempting the impossible. But Mr. Santens won. The jaguar group, composed of the hard-won specimens of that museum's faithful ally, John M. Phillips, is not only a success, but it is a masterpiece.

I estimate a four-sided group as representing about double the difficulty of a group with a landscape background, and, therefore, exhibiting but one side. Let him who thinks otherwise try the making of an all-around group and see for himself.

The composition of the Pittsburgh jaguar group brings those fearsome animals very close to the visitor. On four sides, everything is foreground. There is no painted picture of the thorny Mexican jungle to help out. You are within arm's reach of the whole thing. The rough rock and the arid and scraggy vegetation are glaringly real, and nothing is lacking save the baying dogs and the perspiring hunters, all with their tongues hanging out from heat and thirst, and exhaustion. If the visitor could hear the story of the running down and killing of that old he-one, as John Phillips told it to me, he would feel with me that the story and the group are quite sufficiently near to the real adventure.

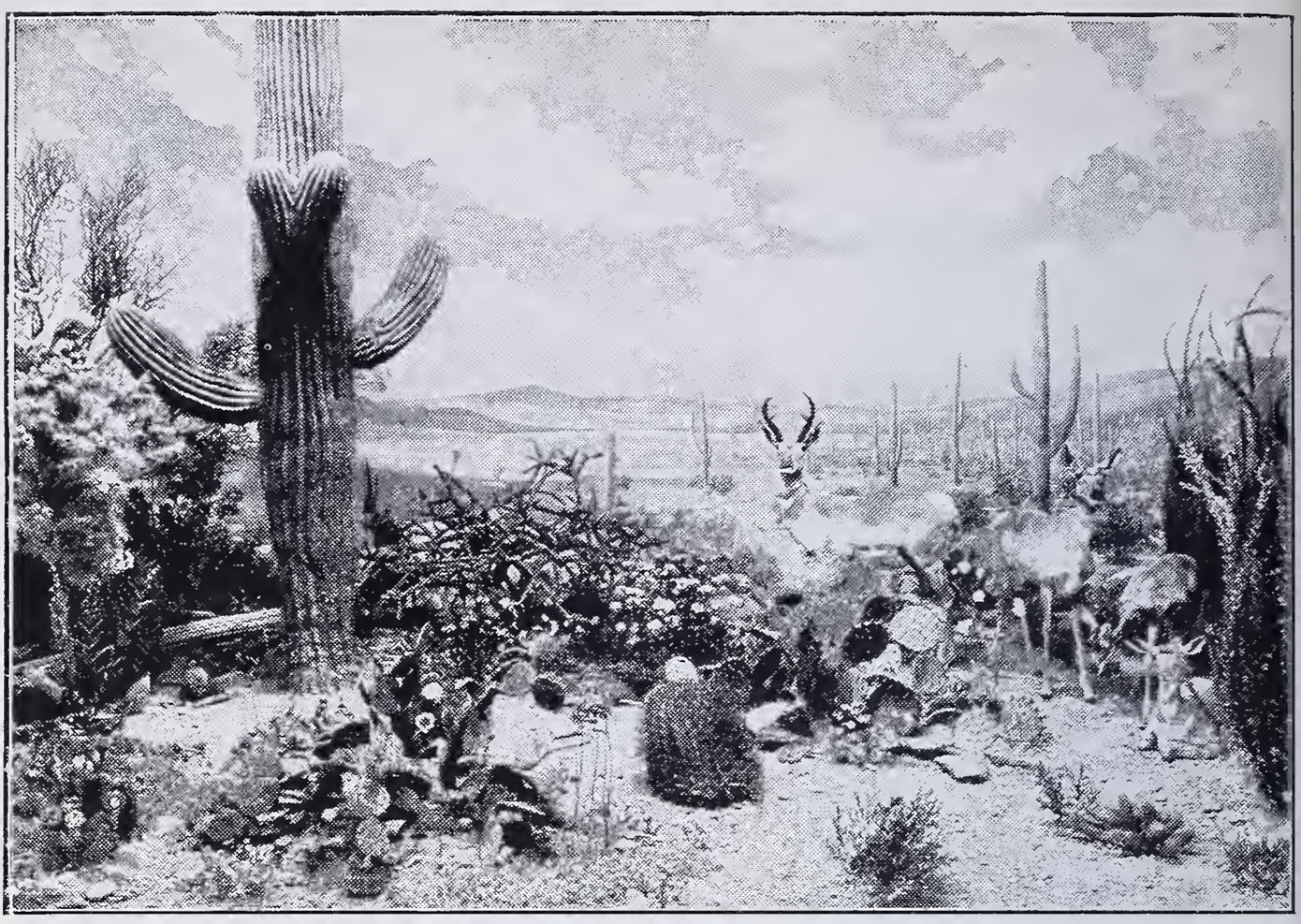
The Carnegie Museum is really rich in groups of great mammals, or great groups of mammals, whichever the visitor chooses. The Santens black rhinoceros group is truly a *tour de force,* and the group of Burchell and Chapman zebras is a beautiful and spirited achievement. The African buffaloes and mountain kudu are perfectly satisfactory, and the two huge giraffes, reticulated and Nubian, strongly point toward a great giraffe group in the near future—such as at present does not exist.

African Black Rhinoceroses, Carnegie Museum, Pittsburgh.

Mounted by R. H. Santens. Specimen at left shot and presented by Colonel Theodore Roosevelt. Specimen at right shot and presented by Childs Frick.

Grevy and Chapman Zebras, Carnegie Museum, Pittsburgh.

Mounted by Joseph Santens. Two Grevy zebras, marked by many stripes, shot and presented by Childs Frick.



Desert Antelope Group in the Brooklyn Museum.

Mounted by Robert H. Rockwell. Plant life executed by Antonia Miranda. Background painted by Herbert B. Tschudy.

Jaguars in the Carnegie Museum, Pittsburgh.

Designed and mounted by R. H. Santens. Collected and presented by John M. Phillips.

The Field Museum at Chicago early and effectively entered the field of group production. To-day it contains a fine showing of masterpieces in American taxidermy. Its group of African elephants (fighting), by Carl E. Akeley, was the first elephant group ever executed in America, so far as we know. Judged by the standards of artistic conception, this group is truly overwhelming. It is only by an effort that the imagination rises to its level, and yields to it the vast admiration that it deserves. It represents a gigantic conception and artistic effort successfully realized. It needs to be shown in a court at least a hundred feet square. It is a magnificent production, but, like the Sphinx among sculptures, it is not comparable with smaller creations of a pictorial character. It is in a big and new class quite by itself.

In the Field Museum Mr. Akeley wrought long and well. Of the highly artistic groups he there produced we choose first his four-ways group of white-tailed deer, representing the "Four Seasons." We regret that all four sections cannot be reproduced here. They stand together, four square, and their exquisitely mounted bucks, does, and fawns, in varied pelages, with landscape backgrounds and a wealth of forest and waterside foliage, render them quite irresistible. These four masterpieces under one title come very near to telling the life history of the white-tailed deer of the North, and as a sample quarter we have chosen the "Summer" section.

But the crucial test of taxidermic ability is the production of four-sided groups that without any background assistance strike twelve. In this class there is a group of black mountain-sheep, from British Columbia, that is so finely composed and so admirably executed that instantly

it challenges attention and admiration. The rock foundation and accessories are of the simplest character, it is open on all sides, but its place on our list of masterpieces is secure. It is the work of Mr. Akeley, and in breezy mountain-top effect it is just about perfect.

There is a moose group of large size and commanding importance, the work of Julius Friesser, which is well worth a place in this review of masterpiece groups.

The new zoological museum of the University of Minnesota was put on the map by the large groups of animals that were brought into existence when that museum entity was, as to visibility, "without form and void." The joint initiative group work was done by Doctor Thomas S. Roberts, director, and Mr. James Ford Bell, the sportsman and public-spirited citizen who supplied the specimens and the sinews of war.

There is a fine group of caribou, but by reason of its success in a very difficult venture, I am most impressed by the American beaver group, collected, designed, and executed by Jenness Richardson, worthy son of the late Jenness Richardson, who from 1888 to 1893 was chief taxidermist of the American Museum of Natural History.

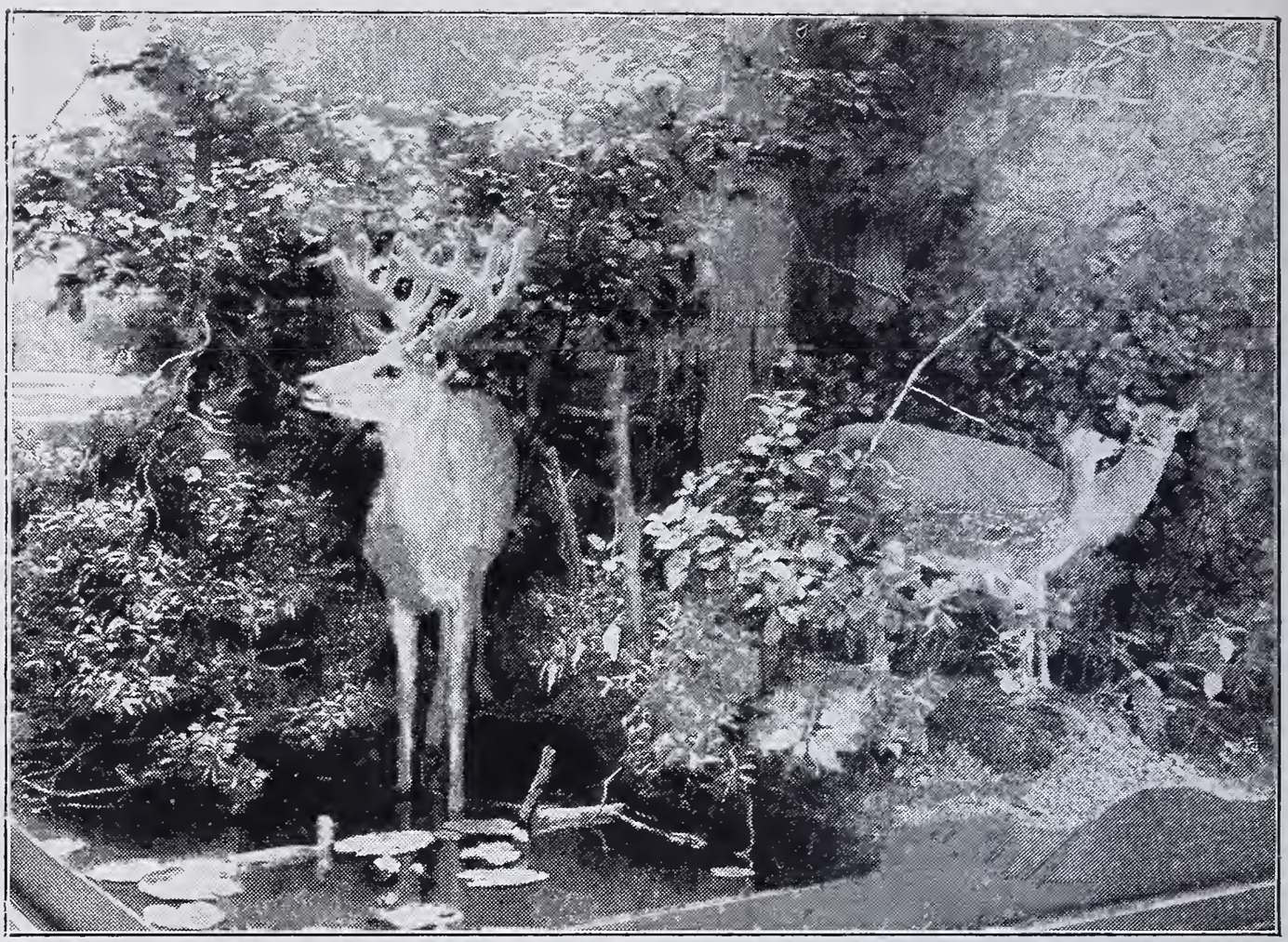
Any beaver group that adequately shows the work of the beaver in tree-cutting and in house and dam building is necessarily a case of preponderating accessories. This is because the wonderful works of the beaver cannot be slighted by a true zoologist. When an animal the size of a bulldog builds a dam fifty feet long by six feet high, a house ten feet in diameter at the base and five feet high above water, set in a pond three hundred feet by one hundred, what can you do but show them, regardless of balance between the accessories and the animals?

Black Mountain Sheep (*Ovis stonei*), in the Field Museum, Chicago.

Mounted by Carl E. Akeley.

Beaver Group in the Zoological Museum, University of Minnesota.

Designed and mounted by Jenness Richardson, who also collected the materials. A representation of Siegfried Dam, Itasca Park, Minnesota.



Portion of White-Tailed Deer Group, "The Four Seasons," Field Museum, Chicago.

The quarter section entitled "Summer." Designed and mounted by Carl E. Akeley.

Silver-Tip Grizzly Bears, Colorado Museum of Natural History, Denver.

Mounted by Albert C. Rogers. Collected and presented by James A. McGuire.

Not many American taxidermists have attempted beaver groups, and some of those who have, have fallen a bit short of complete success. But Mr. Richardson's group, made wholly by himself, with Mrs. Richardson's skilful assistance in the plant life, is a very gratifying and artistic success. Reduced to its lowest terms, it is twenty feet long, twelve feet wide, and ten feet high. An excellent painted background leaves actually nothing more to be desired.

To all American cities of reasonable size even yet in need of museums, I commend the Colorado Museum of Natural History as a model. It is safe and sane, logical, understandable, and admirably adapted to the ends it is serving and to serve. The public spirited citizens of Denver are justly proud of it, and they are doing well by it. It is keeping step with the general progress of one of the most progressive cities in America, and we hope that a dozen other American cities speedily will follow this example.

As a sample of its fine group exhibits, we present the group of silvertip grizzly bears. The specimens composing it were shot in Colorado and presented by James A. McGuire, editor of *Outdoor Life* magazine, and they were mounted under the personal supervision of Director J. D. Figgins, by Albert C. Rogers. Mr. Figgins's own experience as a museum taxidermist has proven to be a valuable asset to the museum.

Quite recently Mr. McGuire made a great expedition to Alaska and Yukon Territory, where he collected specimens and accessories for groups of white mountain-sheep, goat, moose, caribou, and Alaskan bears. These, when mounted and displayed, will put Denver perma-

nently on the map as the proprietor of a museum having a collection of big-game groups worthy of international admiration.

From Denver we must journey to the Pacific coast to find the next assembly of groups of museum mammals. In San Francisco, for the museum of California Academy of Sciences, and in Oakland, for the Oakland City Museum, John Rowley has wrought long and well. Backed by his experience in the American Museum, at first as the pupil of Jenness Richardson, he needed no further preparation for work in his new field.

The group of musk-oxen, chosen by Mr. Rowley as one of the best examples of his Pacific coast work, is shown in the chapter on the musk-ox (page 257), and its right to a place in the masterpiece class will be denied by no one.

To the writer there is genuine satisfaction in the thought that the group idea of the S. A. T. has spread across the continent, taken root, and flourished in two California museums, and now is well represented all the way from Long Island to the Golden Gate.

To all American and Canadian cities which as yet have no great groups of mammals, we say, *get them now, while the getting is good!*

XXII

MASTERPIECES OF AMERICAN TAXIDERMY
(CONTINUED)

Bird Groups

It is a pleasure to contemplate the beautiful and instructive groups of American birds that are to be found safely housed in the museums that stand as monuments of wise endeavors along the way between Brooklyn and San Francisco.

The sculptors and the painters have nothing on the men who made them. Beside the awful raw materials and the handicaps of the group taxidermist, the clay of the sculptor is a luxury, and the canvas of the painter is a bed of roses. But we hasten to point out that in group-making the painter now is the strong ally of the taxidermist, and with him the honors must be divided.

In the development of natural history museums, a stage has been reached wherein the habitat group is imperative. The museum is behind the times that depends only upon shelves filled with banks and rows of specimens singly mounted upon pedestals or perches of polished wood. Such collections have good scientific value, and decidedly are not to be denied or ignored; but distinctly they are not all in all. They are for the student and the scientist, and the hurried casual visitor cannot stop to spell them out. He must take his instruction on the run, and for him the habitat group is indispensable. In it he reads in one good look lessons of a dozen different kinds. By it the great outdoors and its wealth of living things

are brought literally to his feet, and if it fails to awaken and interest him, so much the worse for him. He that hath not the love of nature in his breast, and is not moved by concord of habitat groups, is fit for treason, stratagems, and spoils.

It is quite logical to look for masterpieces of bird taxidermy among the large habitat groups of the zoological museums. Inevitably, the group represents a supreme effort, in collecting, designing, and execution. Therein do we find the utmost results of which the operation is capable, the utmost limits in attitude and poses, and verisimilitude of free wild life.

According to the originality of the designer, the accessories do, or do not, count heavily; and who is there who will say that a thoroughly successful habitat group, either with or without a painted background, is not a work of real art?

In 1878 Professor Henry A. Ward brought to his Rochester establishment a really wonderful bird taxidermist. It is inadequate to describe Mr. Frederic S. Webster by any smaller term. From 1879 to 1882 we worked side by side in the "large museum," and I now write of what I saw.

Even at that early time there were in America a score of men who could mount fresh birds exceedingly well, but with old and mummified "dry skins" their limitations were many. The skill of Ward's foreign taxidermists in dry skins was strictly limited.

But to Fred Webster ancient bird mummies had no terrors whatever. He received them with outrageous confidence, sometimes tinged with contempt, and sailed through them with a display of cheerfulness, precision, and

speed that was fairly amazing. His knowledge and skill never missed fire. With small skins he soaked them into disreputable masses of wet feathers and bones, mounted them, fluffed them up, and wound them, at the rate of from four to eight per day, just like shelling peas. With larger skins that seemed to defy human skill, he was equally successful; and if you don't believe me, ask Doctor Frederic A. Lucas.

Now, all this happens to be important history, because of the rich fruit that it bore in our American museums. Thanks to the open-shop spirit created by the unterrified S. A. T., eliminating all desire for secrecy in methods, Mr. Webster taught his processes to a long line of younger men, who practised and passed them along during the remainder of their lives. Finally, in 1892, Mr. Webster's methods were enshrined in an immortal book called *Taxidermy and Zoological Collecting,* and by Charles Scribner's Sons were sent down the corridor of time, for the benefit of the museums of the world.

In the first exhibition of the Society of American Taxidermists, held at Rochester, there occurred a taxidermic tragedy.

Influenced by the beautiful small groups of birds that he had made in Albany in order to obtain from them a series of colored stereoscopic views, Mr. Webster decided to prepare a large and difficult group of flamingoes on their nesting-grounds. In comparison with all the bird groups that preceded it, it was a whale of a group. The mud nest was known, but not a soul in America knew whether the flamingo mother permitted her long legs to hang alongside her nest or folded them up like a two-foot rule and resolutely sat upon them.

In order to be on the safe side, and please everybody,

Mr. Webster shrewdly disposed those legs alongside the nest, as if in the act of being drawn up. The idea acquired merit, and no one found fault with those devoted legs.

The labor of making that group was great and the annoyances many. The artist elected to make one flamingo stand in shallow water, and the doing of it very nearly converted Mr. Webster into a nervous wreck.

But art triumphed over the total depravity of plate glass, and the finished group was a success so complete that even Mr. Webster's rivals were proud of it.

The three judges went through the exhibition most carefully, and for the best work in bird taxidermy they awarded a medal—to what? To the group of flamingoes? No! It was given to a silly and solitary wood-duck, also the work of Mr. Webster, standing on a twenty-five-cent pedestal of black walnut.

Alas! for the sometimes-divine sense of proportion. That decision set back by about five years the production of large bird groups for American museums, and in the S. A. T. it was a tragedy.

Of all our American zoological museums, great, medium, and small, perhaps nine out of every ten of them began to upbuild themselves on foundations of "stuffed" birds. I could name at least a score in evidence. Of all materials for the amateur museum-builder of the earlier days, birds were most plentiful, cheap, and satisfactory. It was the bird taxidermists who were first in the field, and down to 1880 they mounted little else than the easy and accommodating skins of freshly killed specimens.

The mounted group of birds in three dimensions, with plenty of accessories, both real and artificial, and at last a well-painted landscape background, is the last word in

bird taxidermy. It is the supreme effort of a skilled and versatile artist to bring beautiful birds and their most picturesque haunts as close-ups of nature to the very finger-tips of the pent-up city millions who long to go afield but cannot. Now, thanks to the co-operation of men and women of intelligence as well as means, the best of the results that have been achieved in American museums are natural, artistic, instructive, and beautiful.

When you give yourself up to the illusions that such works of art place before you, you smell the woods perfume of the Adirondacks with the ruffed grouse, the pungent resin of the Southern pine with the wild turkey, the aromatic sage-brush with the cock-of-the-plains, and you hear the surf-beats and the scream of the gulls on the bird-bearing cliffs by the sea.

Will the reader pardon me if I pause for a moment to quote a few lines written thirty-three years ago in a book on taxidermy?*

Turn to page 222 and read these words of 1891, urging bird groups and painted backgrounds for groups:

"As yet the museums will have no painted backgrounds. Ten years ago they would have no groups, and no birds with painted legs and beaks. They have all come to the two latter, and they will all come to the painted backgrounds, also, in due time; and it will be a good thing for them when they do. . . . Twenty-five years hence the zoological museums of this country will be as attractive and pleasing as the picture-galleries, and they will teach ten times as many object lessons as they do now. To-day the average museum is as lifeless as a dictionary, but the museums of the future will be life itself."

* "Taxidermy and Zoological Collecting," by W. T. Hornaday, Chas. Scribner's Sons.

The first efforts of the Society of American Taxidermists to promote bird groups met with such pronounced discouragement from the three judges of the Rochester exhibition that the complete success of the idea was postponed from 1880 to 1887—seven long years.

In the spring of 1888 Mr. Morris K. Jesup visited the United States National Museum, and the writer had the pleasure of showing him the groups of bison and coyotes that opened the road. His admiration was generous and undisguised, and then and there he declared his intention "to have groups for the American Museum." The writer's chief assistant, Jenness Richardson, Sr., then fairly in his stride as a qualified taxidermist, soon was offered the position of chief taxidermist in the New York Museum, and sorrowfully we bade him go and make good.

In a very short time Mr. Richardson was at work on a series of small bird groups, and also the great thirty-five-foot-long group of American bison.

It was Mr. Jesup himself who designed the American Museum's bird-group machinery, wound it up and set it agoing. From that day to this, in the American Museum the mounting of bird groups has been pursued with diligence, and the result is a beautiful series.

The range of subjects is fairly wide and the means at the command of the taxidermic department have been practically unlimited. Mr. F. M. Chapman, the curator of birds, has been a good collector of skins and other materials for groups, and the years of time spent by him in the field have contributed much to those exhibits.

Jenness Richardson, Sr., wrought diligently on that pioneer series of small bird groups. He collected all the material, he mounted all the birds, and at first he made

the green-plant accessories. Eventually, the artificial leaves, plants, and flowers, produced by a slow and tedious casting process, were made by Mr. and Mrs. E. S. Mogridge.

The first twenty groups produced by Mr. Richardson consisted of American song birds. Being of the four-sided type they were without landscape backgrounds. The proletariat was delighted with them and asked for more. Although those groups were exquisitely done, the taxidermic work involved was not of an exacting kind. It was not until Mr. Richardson designed and mounted his great loon group, showing the shore and waters of Lake Umbagog, that he struck twelve, and set the pace that ever since has been maintained in the American Museum.

The loon group is a masterpiece, and among American bird groups it played the same road-opening service that was performed for mammals in the National Museum, in 1887, by the group of American bison.

To-day the American Museum displays an exceedingly fine collection of large, medium, and small bird groups, in agreeable variety. The largest and the most notable are those containing "The Loon," "The Summer Birds of the San Joaquin Valley," "The White Pelicans," "The Birds of the Canadian Rockies," "The American Flamingo," and "The Sea Birds of Bird Rocks, Gulf of St. Lawrence."

The groups of middle size, of which there are many, and all lighted by electricity, contain one feature that originated at the American Museum. Their cases completely box them in everywhere save in front, and the rearward half of each case has the effect of the interior of the farther half of a hollow sphere. This design eliminates all angles

and corners, and when covered with a good painted landscape the artistic illusion is admirable.

Among the American Museum groups we find one that displays a startling innovation. We cannot say that we like it. The group of American flamingoes on their nesting-grounds on Andros Island, Bahamas, contains a startling collection of painted birds, which begins actually in the foreground, and the size of life, and flocks away back into the middle distance. The group is half mounted birds and half painted birds. We willingly indorse in a group background a limited number of distant and unobtrusive painted birds, but the artistic value of this flamingo combination is questionable.

To my mind the American Museum group entitled "Summer Birds of the San Joaquin Valley" is particularly fine in artistic qualities, perfectly balanced, and thoroughly pleasing. At one glance it tells the story of California's most lovely valley and the richness of its bird life at its most charming season. The outdoor effect is perfect and the birds are excellently done. Every picture like this is calculated to inspire in the beholder a love of birds and a desire to protect them from slaughter.

Where is the ocean traveller who has not been entertained and charmed by the companionship of the gulls and terns, or, better still, the albatrosses, petrels, and frigate birds that elected to sail along with his ship? Can we ever forget the sea birds of Puget Sound that acted as our escort toward Victoria?

Mr. Robert H. Rockwell, of the Brooklyn Institute Museum, has commemorated this charming sea-bird habit in a delightful group. The bulwarks and rigging of a ship, faithfully reproduced, and rolling sea overside, give

Cape Pigeons and Whale Birds Following a Ship, Brooklyn Institute Museum.

Designed and mounted by Robert H. Rockwell. Background by H. B. Tschudy.

Summer Marsh Birds of Louisiana, Colorado Museum of Natural History, at Denver.

Collected and mounted by John D. Figgins.

California Sea Lions, Museum of the California Academy of Sciences.

Mounted by John Rowley, assisted by Paul J. Fair and Joseph P. Herring. Background by Worth Ryder.

Sea Birds on the Farallone Islands, Museum of the California Academy of Sciences, San Francisco.

Prepared under the general direction of Doctor Barton Warren Evermann. Mounted by John Rowley and Paul J. Fair. Background by Maurice G. Logan.

to his group of flying Cape pigeons and whale-birds a startling degree of verisimilitude, and we salute both the good idea in the design and its excellent execution. If this group does not make every landsman yearn for a sea voyage, nothing will do so. Mr. Rockwell's analysis of the attitudes of sea birds in flight is an admirable contribution.

So far as we have observed or learned, the United States National Museum was the first museum of America to begin to make habitat groups of mammals and birds because species were threatened with extinction. That was the enacting clause of the bison group.

To-day, out of the habitat bird groups in the National Museum, I would be recreant to my trust if I should fail to offer here the group of passenger pigeons. However, not even the total extinction of a species would justify the selection for this exhibit of any poor, or even mediocre, taxidermic work. This group of a vanished species stands squarely on its own merits. As a work of art, and as a representation of nature, it seems to be 100 per cent perfect. Does it not carry you straight back to the magic and marvellous plates of Audubon's "Birds of America"? Right well would this group have pleased that master, had it been made in his day.

I commend to other American museums the desirabilities of this particular group. To-day many people are asking: "What does a passenger pigeon look like, anyhow?"

In the Carnegie Museum at Pittsburgh there is a fine bird and mammal group that now should be of unusual interest to the millions of American sportsmen, tourists, and others who know the elk herds of the Yellowstone Park. It is Frederic S. Webster's flock of condors and vultures contemplating a dead elk. It suggests with

stunning force the steadily accumulating tragedy of "the Jackson Hole elk herd" that every November wades through the deep snow from the Park down to the Jackson Hole country—only to find barren grazing-grounds. The fertile lands of Jackson Valley are all fenced hay-ranches, and the foot-hills, once well covered with grass, have been grazed bare by herds of cattle.

The Field Museum at Chicago is a great institution, and in need of no shower bouquets from me. Nevertheless, it is a profound satisfaction to see that along with its other achievements it is developing a series of habitat bird and mammal groups on a scale of excellence quite worthy of one of the greatest cities of America.

The Field Museum has three large bird groups that are particularly superb. I have not seen any in their class that surpass them. They represent "The California Condor," "The Wild Turkey," and "The Whooping and Sandhill Cranes." Each is an unqualified masterpiece.

The dramatic composition of the condor group is very impressive. It is very simple in composition, but the magnificent swoop of the alighting bird is thrilling. "The Wild Turkey" group will send thrills throughout the nervous system of every lover of the woods, and of the wonderful birds still found in some of them. We can smell the dead leaves and the rich humus. In a moment "The Crane" group takes us away to the prairies of Alberta, where a very few unexterminated whoopers still find sanctuary during their breeding season.

These three groups naturally suggest the question: Why is it that more of our museums do not make more groups of these important, spectacular, and vanishing species of birds?

Loons on Lake Umbagog, New Hampshire, American Museum of Natural History.

Designed and mounted by Jenness Richardson, Sr. Background by Hobart Nichols.

Bird Life at Heron Lake, Minnesota.

Close-up showing detail. Zoological Museum, University of Minnesota. Collected and mounted by Jenness Richardson, Jr.

White Pelicans on Klamath Lake, California, American Museum of Natural History.

Mounted by Herbert Lang. Background by Charles J. Hittell. Vegetation by J. D. Figgins.

Laysan Island Bird Group: Rookery of Sooty-Backed Terns, Museum of the University of Iowa.

Collected and mounted by Homer R. Dill and others, under the direction of Professor C. C. Nutting.

The largest and by far the most spectacular of all the world's habitat groups of birds is to be seen in the museum of the University of Iowa, at Iowa City. The great Laysan Island bird cyclorama was developed because of the vision and enterprise of Professor C. C. Nutting, director, and Homer R. Dill, then chief taxidermist, who saw a golden opportunity and felt that it was too good to be lost. They felt that other bird groups might come, even from the ends of the earth, but the people of Iowa and the Middle West should be given one grand opportunity to see a star-spangled island in the far-off mid-Pacific Ocean, a sea bird's paradise, and inhabited only by birds.

Laysan Island floats on the broad bosom of the tropical Pacific, 700 miles northwest by north of Honolulu, and to reach it you must go under your own steam. To it the university sent Mr. Dill at the head of a competent corps of collectors. The undisturbed birds were studied, and enough specimens for the group were collected. The island was mapped and photographed, and quantities of vegetation were taken and preserved.

The Laysan cyclorama depicts the shores and the hinterland of the island, and if any Laysan bird species got away unrepresented, we have not yet heard of it. The largest, most numerous, and most important is the Laysan albatross. The total showing of ocean bird life is most impressive. There is a great array of Laysan albatrosses, gannets, terns, petrels, shearwaters, man-o'-war birds, tropic birds, and long-legged shore birds. The varied features of shore and surf and sand dunes all are there; but of course it is a practical impossibility to reproduce here the entire ensemble. Out of ten sectional photographs we present one that fairly indicates the scope of the work.

The group occupies about 800 square feet of floor-space. The painted background is 138 feet long and 12 feet high. The outside circumference is 138 feet, and the visitor's view is from a glass house in the centre. The total number of mounted birds is *about two hundred,* representing 25 species.

It must be stated here that the University of Iowa Museum contains a remarkably successful "Louisiana Swamp" group full of snowy egrets, and groups of large mammals such as American bison, white-tailed deer, puma, and Atlantic walrus.

For the benefit of many American boys who are thinking about taxidermy as a career, I am now going to say something of particular interest to them. It is this:

"The longest pole knocks the persimmons."

And Professor Homer R. Dill is the only man I ever knew who studied hard and worked diligently for two entire years, without even a trace of "salary," to fit himself to fill a responsible position as a taxidermist of the first rank. A friend of his laid out a course for him, and he followed it out in every particular. And now mark the sequel:

No sooner had young Dill completed that course, and fitted himself to fill a worth-while position, than the University of Iowa announced its intention to appoint a chief taxidermist for its museum. There were twenty-four applicants, and some of them were mighty good men. In an open and fair competition, Dill won the prize, and made good. Now he is by right of election "Professor Dill," and director of the museum.

Incidentally, the only educational institution in America (so far as known) that gives a regular course in taxidermy and museology is that same University of Iowa,

which has graduated into those fields more good men than I have space to name.

The State of Minnesota is famous as the home of Senator Knute Nelson and for its possession of many great marshes and lakes that serve as breeding-places for the water-loving birds. Because of this breeding-ground asset a great museum group to display it is very much in order. Naturally, the best place in which to seek such a group is the museum of the University of Minnesota.

Now, even under the best conditions, a large and truthful marsh group is a mighty difficult subject to handle; and so is every large swamp group. The danger lies in too much vegetation and not enough visible bird life. On that rock many a good bird group has struck, and split wide open. Any group that is 99 per cent accessories and 1 per cent birds or mammals is not a success.

For the University of Minnesota, Jenness Richardson, Jr., has collected and made, under the direction of Doctor Thomas S. Roberts, the Heron Lake bird group; and it is a fine success. The painted background fits perfectly, and the picture of it all looks just like a good photograph of a real marsh, made from a blind when the birds were at home. The special purpose of this work is to show how marsh-loving birds live in peace, and in safety from hawks, owls, and other vermin, among the friendly cat-tails and reeds.

Wise birds are these, and lucky, too. And we pity the unhappy birds of Oregon and other states nearer home whose swampy shelter havens are being madly drained and destroyed.

One drawback to the preservation in books of fine bird groups of great length is the impossibility of reproducing them. For example, consider the truly great and beautiful

group of "Summer Marsh Birds of Louisiana" in the Colorado Museum of Natural History at Denver. It is reeking with roseate spoonbills and wood ibises, both of them species that thrill every bird-lover who has the good fortune to see them in the great outdoors. This group is twenty-eight feet long, and what it needs is a magazine page with a type bed sixteen inches wide—a size rather hard to come by.

But a good reduction is better than no picture, and as a matter of fact the composition of this group is so good that it would come near to holding its own on a postage stamp. We are glad to see Louisiana thus placed on the map of the bird world in the geographical centre of the great West.

The presentation of our exhibits by natural geographical progression from East to West is logical and fairly necessary, but it is not wholly satisfactory. It leaves to the last a truly great collection of mammal and bird groups of the first rank importance, to be found in the Museum of the California Academy of Sciences, San Francisco. Therein will be found a grand array of habitat groups representing the splendid Pacific fauna from Alaska to San Diego, and every American who knows his California well knows the mountain, valley, and coast rock faunas that demand representation.

I regret that by reason of a mischance none of the mammal groups of the California Academy were included in my previous article in *Scribner's Magazine* for July, 1922. As a desirable supplement we here present the group of "California Sea-Lions" that is in every way worthy to represent the Academy and the Golden State.

Out of a fairly bewildering array of bird groups we

select without even a moment of hesitation the grand and imposing composition of sea birds, rocks, cliffs, and thundering surf depicting the famous Farallone Islands, just beyond the Golden Gate. It is the last word in groups of sea birds, and it shows how the bird fauna of mighty California ends on the picturesque Farallones, literally in a blaze of glory.

Owing to various circumstances beyond his control, the taxidermist rarely receives from the public that he serves the rewards that are due him. The painter and the sculptor can sign their works, good or bad, and send their names rumbling down the ages. Of the admirable picture or statue the intelligent beholder promptly asks, "Who did that?" But with taxidermic work it is different. It is only one visitor out of every 10,000 who asks the name of the man whose brain and hand evolved it from the raw. In the best museums the curators take pains to credit the taxidermist on the labels; and in America this practice was inaugurated in 1883 in the National Museum by Doctor G. Brown Goode.

In all save a very few conspicuous cases the salaries of taxidermists in museums are much too low. If the pay in appreciation is small, that in the monthly envelope is still less. For the "versatile cuss" whose many-sided genius produces a beautiful group that will endure for at least two hundred years, there is nothing but a pittance of pay, that only just decently feeds, clothes, and amuses him during the weeks or months that the thing is actually wrought upon. For the rainy day there is next to nothing; and one of the saddest sights you can see in respectable toil is a man past sixty who by poverty is compelled to go to daily toil in a hard and exacting business.

XXIII

MASTERPIECES OF WILD-ANIMAL PHOTOGRAPHY

It was a notable event in the history of the wild life of our country when the first big-game hunter hung up his rifle and took to the woods with a camera.

Ever since the first photographer went afield with a sportsman, the camera man has been the best exponent and advertiser of the prowess of the man with a gun. During the days of the slow and cumbersome wet plate, and long exposures, the alert and sudden wild animal was about as unattainable pictorially as the canals of Mars.

The dry plate opened up great possibilities in the photographing of dead game in its haunts. From 1884 onward American hunters of big game joyously welcomed the startling pictures made by Laton A. Huffman of Miles City, Montana. Mr. Huffman was a true sportsman, a fine shot, and as a photographer of hunting scenes he long stood without a rival. Never will I forget the thrills that I received in his little old log-cabin studio in "Milestown" when he showed me his stereoscopic views of "elk and dead grizzlies: glory enough for one day," a mountain-sheep ram on the brink of a precipice, many buffalo-killing pictures, and antelope and deer galore. I think that Mr. Huffman—who still lives and photographs—enjoys the distinction of having had more photographs stolen for publication without credit than any other camera man on earth; and that I know is a large order.

American sportsmen hailed with joy the birth of the light, ever ready, universal-focus kodak. It was the open-

ing of a new and delightful field of Christian endeavor. It presented a highway of escape from the flood of game-slaughter photographs that had been sweeping over the continent like a deluge.

About 1905 the long continued slaughter of American big game had begun to produce on the public mind certain strong effects. The deadly efficiency of high-power repeating rifles and automatic shotguns was seen to be exterminating the game of America, great and small. This grossly unfair and to a great extent unsportsmanlike slaughter presently began to have a sickening effect. Thousands of sportsmen became so disgusted with game slaughter, and with endless pictures of dead game, that they hung up their guns forever. To this group, embracing many alert and vigorous young men who were keen to achieve new conquests in new fields, the possibilities of hunting with the camera instead of the gun instantly appealed. Hundreds of sportsmen definitely dropped the gun and took up the camera for the photographing of living game in its haunts.

Forthwith the world of outdoor-lovers took off its hat to them and bade them good-speed. It was realized that any duffer with a good check-book, a professional guide, and a high-power repeating rifle can kill big game, but it takes good woodcraft, skill and endurance of a high order, to enable man or woman to secure a really fine photograph of a fine wild animal in its unfenced haunts.

Now, this supreme difficulty was precisely the incentive that was needed to place wild-animal photography in a niche of its own, well above most wild-animal shooting. Sometimes the dangers involved are a hundredfold greater than those encountered by a well-armed man in hunting.

We know that Mr. Dugmore took great risks with African lions at six feet, and that Mr. Phillips accepted hazards in getting his goat pictures in British Columbia that were almost criminal. I have seen him in precipice diversions with his camera, and there is no room for doubt.

It was a good omen for the game of North America when sportsmen began to view it in the finders of the cameras instead of through the sights of rifles. No man can measure with any degree of accuracy the potency of the influence of the camera in the preservation of the wild life of North America. Did any one ever see a real devotee of the wild-life camera who was also a slaughterer of game up to the full bag limit? I trow not. About 100 per cent of the ardent camera men whom I know are pronounced and active protectionists. Moreover, if a close-up camera acquaintance with wild birds and beasts will not transform a destroyer into a preserver of wild life, nothing ever will—not even the chastening and refining influences of old age.

The photographing of wild game on the hoof, free in its own haunts, received its first great impulse in America from the indefatigable work and the fine success of A. G. Wallihan, of the town of Lay, Colorado, Lay being situated in the once-favorite haunts of the mule-deer and prong-horned antelope.

Now, *cherchez la femme,* say the French.

Being a man, I hate to admit it; but Mr. Wallihan states most positively that the idea of photographing wild game on the hoof originated with Mrs. Wallihan. One day while crouched in the sage-brush studying a colony of ants at work she looked up to find herself closely surrounded by a herd of mule-deer. That gave her the idea of a blind,

a fixed camera, and a Wallihan; and afterward she gallantly aided in the practical development of the idea.

Mr. and Mrs. Wallihan made their first negatives in October, 1890, in the westerly end of the Elkhead Range, northwestern Colorado; and they were of wild mule-deer. To start with, Mr. Wallihan was a professional photographer. He began with heavy tripod cameras, set up beside game trails and patiently tended. At times he used 8 x 10 plates. Up to 1894 he used Carbutt's cut films, but changed to Cramer's Crown plates because they were more speedy. For several years he used a Gundlach rectigraphic lens. In 1894 he took up a Zeiss lens, Series II; but the telephoto lens that he acquired in 1895 proved too slow for rapid work.

In the annals of wild-animal photography Mr. and Mrs. Wallihan earned a permanent place. They camped and cooked, they packed and trailed, and fought wind and weather for ten busy years to produce the pictures that were handsomely published in 1901 by Doubleday, Page & Co., in a volume entitled "Camera Shots at Big Game."

Mr. Wallihan made the first good pictures (so far as I know) ever made of the wild and free mule-deer, pronghorned antelope, and elk. He made the first pictures of mountain lions and lynxes at bay in tree-tops. Of each of these five species he secured admirable results, and by zoologists and artists they were highly prized records of the true forms of those animals. They came as water to thirsty men in a desert, and the only sad part of it is that the Wallihans never received one-tenth of the returns in cash that their labors fairly earned.

The old admirers of Mr. and Mrs. Wallihan will be glad to know that both are yet living, at Lay, in good

health, and with the currents of their lives flowing very much as they did when they photographed the game that since that time has vanished from Lay.

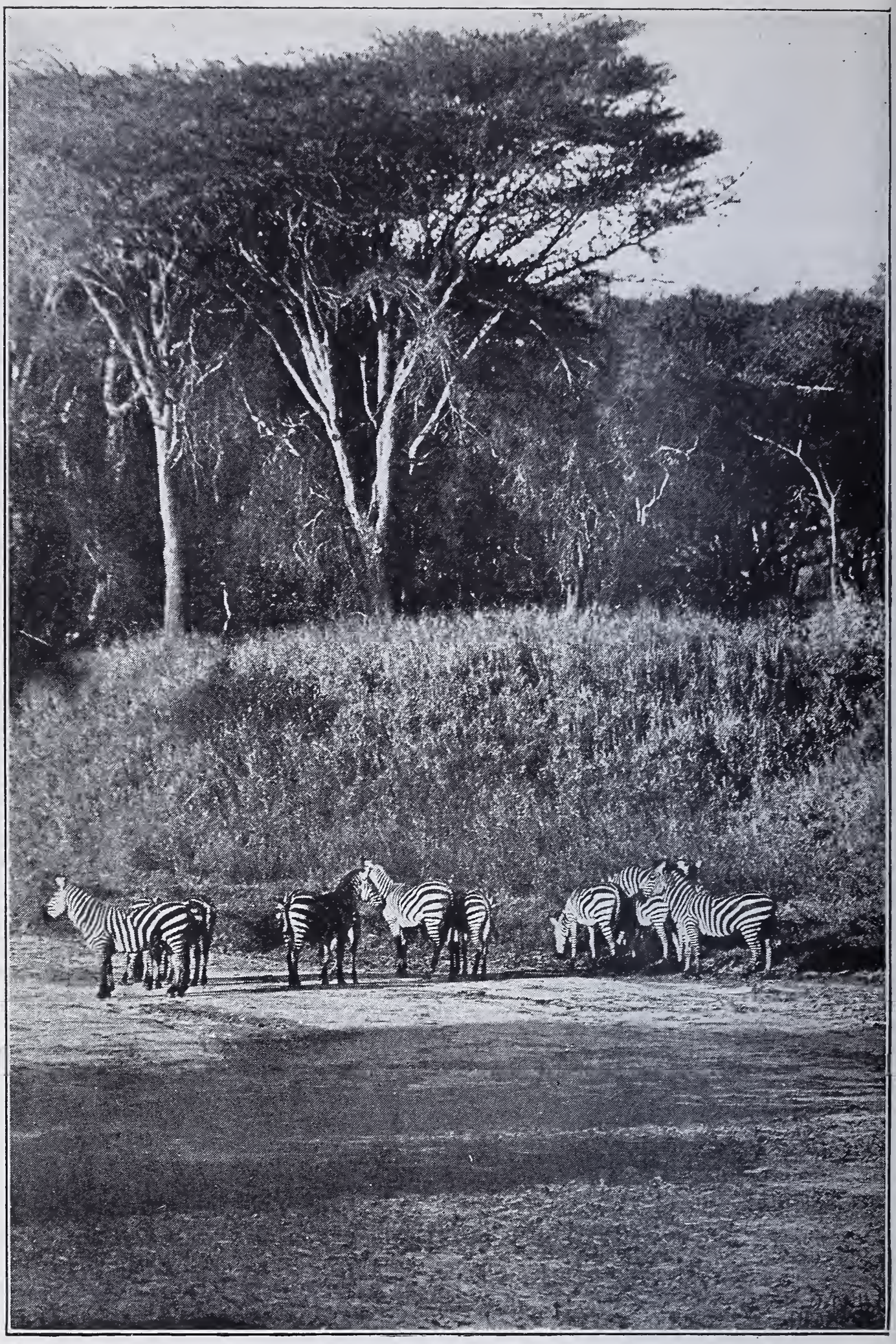
Among the American photographers of wild animals, Major A. Radclyffe Dugmore occupies a conspicuous and enviable place. I install him as an exhibit alongside our American knights of the camera-in-the-wilds, because he spent in America so many years of keen activity, and also because his career with that field-piece began here.

Major Dugmore's work as a wild-animal photographer splendidly culminated on the open plains and in the scrubby forests of British East Africa. In 1909 he fraternized with James L. Clark, the New York taxidermist, and went to British East Africa. Those two dauntless youngsters set out from Nairobi without a guide or manager of any kind, and from first to last they managed their own safari, and guided themselves.

It is good to be young and fit to venture like that, and both those reckless boys made good. They hunted, shot, and photographed as no one of my acquaintance ever had done up to that time. On some occasions Major Dugmore wielded a formidable telephoto camera that as field artillery was enough to frighten the boldest lion into the tallest timber. In the long-distance fighting the telephoto gloriously made good. There was an elaborate and very responsive flash-light battery, and it also got in its deadly work. Dugmore and Clark returned with a layout of negatives that swept New York off its feet with a wave of admiration. The best chances at the biggest game were not ruined by over or under exposures. The finest negatives were not lost overboard. In fact, the rarest chances seemed to produce the best negatives.

Photograph © by Major A. R. Dugmore.

Lion Coming to a Zebra Feast. (Flashlight.)



Photograph © by Major A. R. Dugmore.

Herd of Zebras, Olgerei River.

The full list of subjects, as samples thereof are set forth in Major Dugmore's book, "With Rifle and Camera in African Wilds," reveals lions, leopards, hyenas, elephants, buffaloes, zebras, kongonis, giraffes, elands, waterbucks, gazelles of sorts, wart-hogs, hippos, and many other large species.

In essaying to select from all this wealth of material only one picture to offer as *the* masterpiece of Major Dugmore, we are torn by conflicting emotions. To ignore the fine lion taken at six feet by flashlight while Clark stood sole sponsor for the life of the operating photographer, would be an outrage on the verities. And yet, while the picture of the lion is 100 per cent perfect, and a real masterpiece if there ever was one, it is a close-up, there is no stage setting of high value, and no studied "composition." At all hazards, however, this picture must be shown.

A good portion of appreciation must be bestowed upon Clark, the intrepid hunter, who at all times backed up and protected Dugmore the artist; and the splendid series of African pictures brought back by those two venturesome spirits deserves to be inscribed to the credit of both.

In 1909, when the Roosevelt Expedition went to Africa on the greatest of all safaris, by the dropping out of the professional photographer, Kermit Roosevelt suddenly was thrust into the position of official photographer to the expedition. I viewed this arrangement with many misgivings—because it was a task for maturity and long experience—but the young man made good. He made good 100 per cent, not only with the big-game rifle, but in wild-animal photography as well.

Captain Kermit's masterpiece is his best picture of a whole herd of elephants in a high but rather open forest.

The light was none too good, but fortunately it was good enough. This real achievement was scored from a perch on a low limb of a tree, conveniently placed to drop the intervening brush out of view. Five tuskers appear in the front line, and the elephants are massed together in the composition as neatly and perfectly as if the hand of man had grouped them to get all the flankers into the picture.

Colonel Theodore Roosevelt was very proud of this picture, and so were the editors of *Scribner's Magazine* and the *African Game Trail* book. Many men—and some beasts, also—have shot African elephants, but the number of those who have scored with the camera on Africa's grandest game is very small.

The wild-animal photography of Mr. George H. Shiras, 3d, of Washington has challenged the admiration of millions of Americans. Fortunately it has been given good "publicity." Starting in with flashlight photography as his favorite diversion—partly because of its very great difficulties—Mr. Shiras thoroughly conquered that field before he turned to another. His wonderfully successful and artistic flashlight pictures of white-tailed deer, porcupines, rabbits, raccoons, and bears quickly made him famous. Any man who can catch with his night camera an *albino* porcupine, as Mr. Shiras has done, certainly deserves to wear laurels.

Success with the flashlight camera calls for high-class woodcraft, correct knowledge of "animal behavior," judgment of a high order, and infinite industry and patience. If any debonair amateur thinks this is an easy road to success, let him pursue it a short distance. More things can happen to a set camera and a string in thick darkness

than are dreamed of in our philosophy. But the discerning ones appreciate the difficulties to be overcome, and applaud success accordingly.

Of the beautiful and bewildering Shiras flashlight pictures, most arbitrarily we present the one that in our opinion has the best right to rank as *the* masterpiece. It is unnecessary to point out its fine and commanding qualities. The composition was by no means accidental. Of course, the artist composed his picture before he set up his camera, and the result is his by deliberate design. This deer picture represents absolute perfection in flashlighting; but it is a pity that space is not available for the scared albino porcupine who so clearly registers "surprise."

But Mr. Shiras at last sighed for other worlds to conquer than those illumined by flashlights, and forthwith he became a day worker. Finally, it required five numbers of the *National Geographic Magazine* to contain the collections of pictures that were selected adequately to represent the various phases of his work. We present here one daylight picture that seems to us masterful, and paramount in excellence. The great pictorial wealth of Mr. Shiras's work fairly demands that a volume be devoted to it, to place it in permanent and accessible form.

By force of circumstances and by virtue of sheer necessity Stephen N. Leek of Jackson Hole, Wyoming, became the great photographer and champion of the American elk. Years ago he settled in the Jackson Valley as a prosperous ranchman, and took root there. His ranch became the central rallying-point of the 20,000 elk (more or less) that for years annually have been driven down out of the Yellowstone Park by the early rigors of winter, and forced to seek winter grass through the less-deep snows of

the Jackson Hole country, and on the high mountain ridges that girt it in.

To Mr. Leek the call to photograph those elks, both individually and *en masse,* was irresistible, and he girded himself up accordingly. He learned outdoor photography, from the ground up to its topmost branches; and if his camera can prevent the extinction of the Jackson Hole elk herds, that end will be accomplished. He has lectured upon and illustrated the elk and its vital need for human help, all the way from Jackson Hole to St. Paul and New York.

Mr. Leek has made so many stunning elk pictures that it is difficult to choose *the* masterpiece. However, full deliberation finally settled down to the final conviction that a certain picture of massed elk, looking across the level floor of Jackson Valley, with the Gros Ventres Mountains as a background, is the choice. It is not only a perfect composition perfectly executed, but it is stamped with the well-known and well-beloved personality of our own "Steve Leek."

Without at all assuming to be a photographer of living wild animals, Mr. John M. Phillips, sportsman and State Game Commissioner of Pittsburgh, scored a brilliant hit in 1905, when the writer had the good fortune to be among those present. It was on a Rocky Mountain goat in British Columbia, and the case was notably picturesque.

For twenty years Mr. Phillips has been a keen and successful outdoor photographer. His specialty has been picturesque hunting-grounds, dead game, camps, guides, and "outfits on the trail." His cameras have exploited British Columbia, New Brunswick, Colorado, Wyoming, Arizona, Sonora, and Tampico. His repertoire of big

game, living and dead, includes all the big-game species of North America except the Alaskan bears, the sheep and caribou of the North, and the musk-ox. I have stereoscopic views from hundreds of his best negatives of game, camp, and trail, and really it gives me a pang of regret every time I think of the beautiful subjects that are stored away in John's cabinet, perhaps never to be seen by the public, because their owner never lifts a finger to push one of his pictures into public notice. In "Camp-Fires in the Canadian Rockies" and "On Desert and Lava" (the Scribner Press) we have some fine examples of the output.

Mr. Phillips's favorite camera is the Hawkeye Stereo No. 1, and I must say that, so far as I can observe, its only real rival is the big 8 x 10 on a fixed tripod. The instrument is light, transportable anywhere that a man can go with a gun, and the sharpness with which it digs out and records details is wonderful. Mr. Ernest F. Keller can take a Phillips stereo film 4¼ x 4¼ and enlarge it to 8 x 8 on glossy paper with such magnificent sharpness and richness of tone that the result looks like a contact print from a powerful 8 x 8 plate.

Had the camera in the case been large enough to be cumbersome, or one requiring both hands in its operation, Mr. Phillips could not have carried it to the face of that precipice on Avalanche Creek in the Elk River Mountains of British Columbia, and he never would have accomplished that magnificent series of goat pictures that has sent thrills through all American sportsmen and lovers of wild life. At that time he was a bachelor, he had given no hostages to fortune, and he felt perfectly free to risk his neck on as many precipices as he chose. Mr. Phillips, Mack Norboe, and Dog Kaiser, by reckless climbing and

skilful manœuvring, cornered a big male white mountain goat on a knife-edge of rock, and kept him there until he was thoroughly photographed. Mr. Phillips held on to the rocky face of the wall with one hand and foot, the camera was poised on the flexed knee of the free leg, and worked with the one free hand.

The goat courageously and sensibly stood his rocks, too wise to get nervous or hysterical and leap off into space—as any deer or wild sheep would have done. Now and then he stamped an angry foot, snorted, and stood pat. Once he decided to charge the photographer and knock him off the wall; and had he carried out that intention no power on earth could have saved Mr. Phillips. The distance was only eight feet, and when the goat threateningly advanced three feet of that, the truculent Billy spoiled the photograph by coming inside the focus!

Of the half-dozen fine camera shots made by Mr. Phillips, three are perfect and one is magnificent. The one shown on p. 237 has all the composition of a fine oil painting, and the goat details are perfect. Taking into consideration the zoological value, general composition, sharpness, rarity of the subject and danger in execution, I feel bound to accord this picture first place among all the masterpieces of wild-animal photography that I have seen. Fortunately for the result, this portrait was made on September 15, 1905, when the pelage was at its highest perfection and before it had grown so long and shaggy as to mask the face and form of the animal. It is easy for the excessively long midwinter pelage of a northern animal to spoil it both for the camera and the painter. The Zoological Society's Alaskan moose, by Rungius, was painted in its September coat for the above reason, and the

big-horn sheep painting is of the vintage of October.

Out of a great number of photographs of wild moose—all save a very few showing water-logged and homely females and calves in the summer coat—we choose as a live moose masterpiece the truly fine picture by George D. Pratt, New York State Conservation Commissioner. The moose is a very large and well-fed bull, with grand antlers, and his forest and marsh surroundings are indeed everything that they ought to be for such an animal. This is not a close-up portrait. It is what Carl Rungius calls "a picture," and as such it is entitled to a high place.

One of the most beautiful wild-animal pictures that I ever have seen from the Far North was made by Mr. F. C. Havemeyer, in the White River country of western Yukon Territory. Posing in a landscape composed of a wide, treeless valley with a picturesque mountain background stands a lordly bull caribou of the *Rangifer osborni* species. It is the largest of all the caribou species of North America.

A picture like this represents one chance out of many. Many men work all their lives without its equal. The camera man is the toad beneath the harrow who knows "exactly where each tooth-point goes." A failure may be due to any one of a dozen causes, such as a running animal; natural obstruction; too great distance; bad light; a sun in the wrong place; an ugly background or sordid surroundings. But in this fine picture all the factors were at their best—and for a wonder the camera was ready. Now, which is of the highest value to the world: the mounted head of the bull, or this fine picture of him? Perhaps fifty persons per year can enjoy the former, for a number of

years; but we know that this year about 1,000,000 persons will find pleasure in this picture.

The record-breaking African jungle work of Herbert Lang and James P. Chapin for the American Museum of Natural History produced a bewildering array of rich and rare results. Along with the thousands of zoological specimens collected, *and safely transported to New York,* the photographs made by Mr. Lang are entitled to a prominent place. In the dense tangle of tropical jungles like those of the rain belt of equatorial Africa and the Far East, the photographing of living wild animals often becomes a wild impossibility; and this fact brings us up against a new condition, and a new question.

Shall we admit to the company of masterpieces in wild-animal photography any pictures of wounded or dead animals? Let us remember that sometimes we have to deal with such animals as the rare and wildly elusive okapi —an animal never yet stalked and shot by a white man.

I put this question seriously to several men whose judgment I value, and invariably the final answer has been: "Decidedly, yes!" Inasmuch as my own view coincides with theirs, Mr. Lang's finest photograph of a living but captive okapi bull, in its own almost inaccessible haunts, is presented herewith, in the belief that it will be welcome.

Any man who can offer to the world an artistically perfect photograph of a wild okapi, a parti-colored bear (*Eluropus*), a takin, a giant armadillo, a maned wolf, a bongo, a white rhinoceros, or a giant gorilla is entitled to a place for it among the world's masterpieces of wild-animal photography. I think this should hold for fine adult specimens of those species, even when they are wounded or dead.

The limitations of space forbid more than a brief ref-

erence to the wonderful work of Mr. Lang in the remote and almost impossible okapi country of Central Africa. Those who would read his story and see a series of his finest pictures can obtain it and them, for twenty paltry copper cents, from the New York Zoological Society in its *Bulletin* for May, 1918. I have only to add that, so far as heard from, the wild-animal-lover to whom Mr. Lang's okapi pictures do not appeal has not yet been born; and if the picture shown herewith is not a genuine masterpiece, then I never saw one.

The photographic work in Africa of Mr. Cherry Kearton, Englishman, was ably supported throughout by our own Major James Barnes. The movies that resulted from their joint efforts have been seen and applauded by millions of Americans. While the various water-hole pictures are of course the most spectacular and thrilling, there are a multitude of close-up zoological studies that are of great interest and artistic value. Unfortunately for our purpose, the original films are far away and beyond reach, and the materials now available for a sample picture fall far short of doing justice to Mr. Kearton's genius and work. For all that, however, the annexed water-hole picture, showing giraffes, zebras, antelopes, and baboons, all taken—and well taken—at one shot, is sufficient to show the artistic and zoological value of the water-hole series.

It was the moving water-hole pictures of Mr. Paul Rainey's photographer that first revealed to the world of animal-lovers the terrible state of fear in which the wild beasts of Africa's open country live from moment to moment, and strive to eat, drink, and sleep without being pounced upon by enemies and killed. The humanitarians who think that all wild animals are "happy" and all zoo

animals are unhappy should (if their minds are open) look at these moving pictures taken by Kearton and Barnes at the water-hole, and then look—any day or hour—at the twenty-four captive bears in the New York Zoological Park.

> "The 'free, wild life' is a round of strife,
> And of ceaseless hunger and fear.
> The life in the wild of the animal child
> Is not all skittles and beer."

It is the natural and regular thing for a wild-animal photographer to choose for himself the most difficult tasks in sight—for the obvious reason that there is small merit in the accomplishment of the commonplace. Mr. William L. Finley, Ornithologist of the State of Oregon, first attacked the sea-lions and sea birds of the rocky and picturesque coast of Oregon, and achieved from wild life and foaming breakers about every form of success that the heart of a photographer could desire. Of all Mr. Finley's many wild-life pictures, those are (to our mind) the crowning achievement. The combination of massed wild life in vigorous motion, heaving billows, and leaping and foaming breakers made a series fit to stir the blood of a mummy.

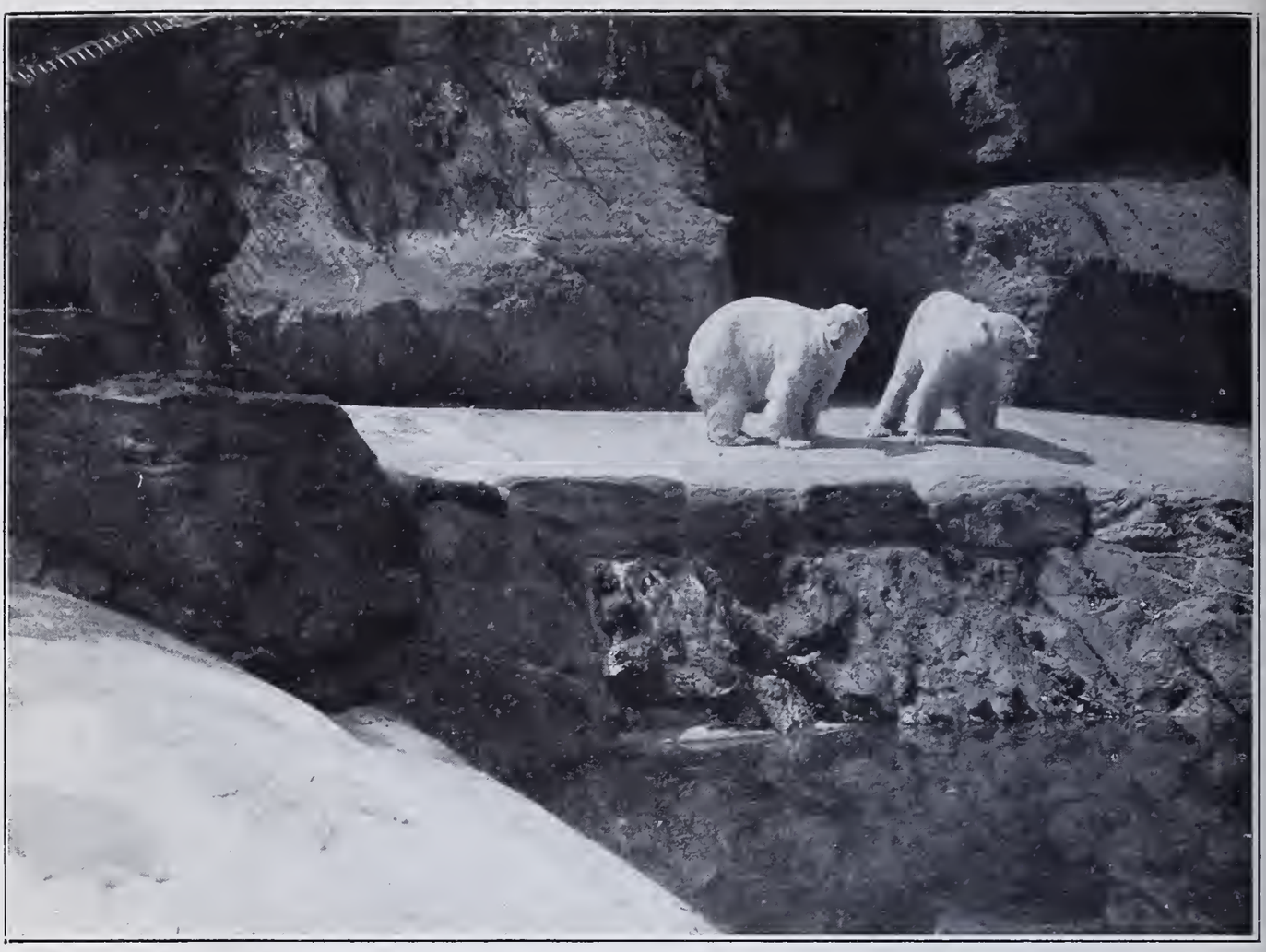
And then, abruptly turning from that well-worked field, Mr. Finley packed his kit and with the bird artist, R. Bruce Horsfall, as a companion, hiked away into the lava and sage-brush desert of Lake County, southeastern Oregon, to catch with his camera the wary and vanishing antelope and the harassed sage grouse. And right there the moving-picture camera discovered things about the big and spectacular sage grouse, and caught things, and

From a photograph by Herbert Lang.

Okapi Bull, Ituri Forest, Upper Congo.

From a photograph by Enos A. Mills.

Mountain Sheep Ram Near Long's Peak.



From a photograph by Elwin R. Sanborn.

The Den and Swimming Pool of the Polar Bears.

From a photograph by Elwin R. Sanborn.

The Zoological Park Idea.

Herd of American Elk in Their Range.

so far as we can discover had up to that hour remained a sealed book to all the bird men of America.

Mr. Norman McClintock, of Pittsburgh, is one of the latest of our wild-animal photographers who has conspicuously made good with the motion picture camera.

His real work began in the Rocky Mountains, both within and without the Yellowstone Park. In the great national playground, oldest of national parks, the game falls into two categories—that which is aloof and really wild and that which is half tame, or even four-fifths tame, pestering around tourists' camps, the hotels, and in the military post of Fort Yellowstone. The latter is in the class of preserve-tame wild game, and thereby is outside the scope of this article. For all that, however, Mr. McClintock's pictures of intimate mule-deer, mountain-sheep, bison, and antelope are most interesting, instructive, and at times picturesque. For example, a wild mule-deer being enticed up the steps of an army officer's house, and actually into the family kitchen, makes a movie of fascinating interest.

To my mind Mr. McClintock's masterpiece is the result of a long and diligent effort to get a really wild bull elk herd leader in his mountain fastness, and while on his travels. It was figured out that on a certain day, and somewhere near a certain hour, the bull would cross a valley, and at a certain spot would climb to the snow-clad summit of the westerly ridge. Taking a gambler's chance, the camera was placed and focused on the line of least resistance for a travelling elk.

The bull elk came, and saw, and was conquered. He climbed up the ridge into the field of the lens, and he paused and stood precisely on the spot that the camera

expected. For the motion camera the climax was quite ideal, and Mr. McClintock obtained a picture that has all the composition and detail of an ideal Rungius painting.

Mr. Enos A. Mills of Long's Peak, Colorado, was a denizen of the summits of the American Rockies. His natural habitat was timber-line, and his normal surroundings were six feet of snow in a howling blizzard. His neighbors were the Rocky Mountain sheep, grizzly bear, pika, Clark's crow, and the magpie.

Life on the summits is a busy occupation, as well as hazardous, and Mr. Mills did not go deep into wild-animal photography. But there are exceptions. When he encountered a fine big-horn ram wallowing through two feet of snow, the Mills camera was ready and a masterpiece was the result.

In the old days, before the State of Colorado wisely and forehandedly enacted a law perpetually protecting all her mountain-sheep, it would have been the natural course for some meat hunter to have "seen him first" and killed that snow-logged ram without mercy. But the world is not wholly bad, even yet.

Considering the brief time that has elapsed since Wallihan began to photograph wild animals in the wilds, great things have been accomplished. The work and the workers cited herein represent only a small fraction of the total output of this new and extremely fascinating pastime.

In this article we only scratch the surface of our subject. Truly, the wild-animal world has by no means been wholly conquered by the camera, either still or moving. More and more will the camera replace the gun—with a great uplift to sport with wild life! Killing has become too

easy to be sport, and easy sport is too sordid to suit real sportsmen.

Thus far we have only touched the moving-picture field. Great things have been accomplished by some of the moving-picture sportsmen, but their results do not readily lend themselves to display in magazines or books. Their only adequate show place is on the screen. But in this field also only a good beginning has been made. The next quarter-century will witness great achievements with the wheels and reels. But, we now say to the knights of the crank: *"Hurry up, or you will be too late to get the finest big game anywhere outside of the game preserves."*

XXIV

THE MAKING OF A ZOOLOGICAL-PARK MASTERPIECE

Every large American city in which the masses are intelligent and proud desires a good zoological park; but for all that, a city can be very proud and boastful without having sufficient energy to make one. The New York Zoological Park is an object lesson of which many American cities may well take heed. It points the way by which every city, large or small, may create and maintain a zoological park of a size suitable to its population and resources. That end is to be attained by a judicious union of private effort, and municipal support at the expense of the taxpayers. New York has clearly demonstrated the fact that the taxpayer is willing to be taxed in a reasonable way for something that will furnish free and perpetual entertainment both to his wife and children and to himself, and at the same time be a credit to his home city. Give the taxpayer a fair chance, and he will support the zoological-park idea, willingly and even gladly.

The prime essentials to success in the creation and maintenance of a joint-effort zoological park are few in number, but the demand for them is inexorable. There must be (1) a free site in a public park; (2) permanence of control; (3) absolute freedom from "politics" and "graft" of every description; (4) wise but energetic management by a zoological society; (5) a general plan of development based on the best expert knowledge; (6) the merit system in choosing employees; (7) all collections must be furnished by the Society, (8) and all improve-

ments and costs of maintenance must be paid for by the taxpayers. Finally, the park must be free on five days of the week, but two week-days should be pay-days, unless the population of the city concerned is under 500,000.

The European plan for the creation and maintenance of live-animal collections differs from the above, in several important particulars. Rarely does the municipality furnish a free site, or even free water. Usually the creating society is compelled to purchase ground, and it is usually selected as near as possible to the heart of the city concerned, so as to be very easily accessible. The result is a zoological *garden,* of from twenty to sixty acres, surrounded by dwellings, and sadly limited in space for the animals. A huge and costly restaurant and concert hall provides entertainment that draws society members, and strangers, also, many times each year; and there is no admission for non-members without the payment of a fee at the gate. There is no municipal support, and the very poor never see the inside of the establishment, because they cannot afford the price. I think it may truly be said that, even with occasional days of admission for the equivalent of ten cents, the zoological gardens of Europe chiefly benefit the rich and the well-to-do classes, to the exclusion of the very poor masses.

New York City builds no public institutions from which the Man-Without-A-Quarter is shut out. In a liberality of spirit entirely surpassing that of the American nation, at least as it is represented at Washington, and with not one pennyworth of aid from the state of New York, this city has created and to-day maintains for her citizens and the world at large six great institutions for public betterment, all of them of national importance.

I refer to the Metropolitan Museum of Art, the New York Public Library, the American Museum of Natural History, and the New York Zoological Park, the Botanical Gardens, and the Aquarium. In this field of high-class educational endeavor there are only three other cities that are in New York's class—London, Paris and Berlin; but I think that New York clearly is entitled to first place.

Through a combination of private generosity and municipal support, wise provisions of Nature and good management, imperial New York created in ten years time, and now presents to her people and to the world, an institution that three distinguished foreign critics have openly declared to be the foremost vivarium of the world. Those critics were Lord Northcliffe, Sir Harry Johnston, the African explorer, and Mr. F. G. Aflalo, a qualified expert on zoological gardens, and author of outdoor books. It is for the purpose of furnishing a bill of particulars that the writer has been drawn into writing at this time.

Every perfectly appointed zoological garden is a haven of rest to overwrought nerves, with the gentle and healthful stimulus of restful interest in new and different lines of thought. At ten o'clock in the forenoon, when the housekeeping of the day has been finished, and before the daily crowd has begun to arrive, a well-appointed zoological garden—with a good showing of flowers—comes as near to being an earthly paradise as the skill of man ever can produce within reach of the busy haunts of men. Of all the nerve-weary business and professional men of New York, how many are there who know that during the forenoon of every day in the year, and all day on pay-days,

the Jungle Walk in the Zoological Park offers nerve balm of rare quality?

On Sunday afternoons, even the sight of the crowd is inspiring. It is good to see, at one sweep of the eyes over Baird Court and the region below it on the west, fully twenty thousand well-dressed people, one-third of whom are well-behaved and attractive children, busily enjoying the beauties of the place, and the band music. It is good to see, on every Monday morning in summer, from the records of the turnstiles, that on the previous day between 50,000 and 70,000 people have enjoyed the temples and shrines of Nature that God and man together have created for the benefit of the working millions in South Bronx Park.

The correct building of zoological gardens and parks is an exact science, just as much so as is astronomy, and the building of observatories. In formulating principles, and in working out the general design of the New York Zoological Park, we diligently studied nearly all existing zoological gardens, partly to ascertain what errors to avoid, and partly to acquire ideas of practical use. Knowing well what all the world has done previously, and having in hand the ideal site of all the world, is it then any cause for surprise that the last-built institution for living wild animals is the best one for the health and comfort of its occupants? The writer has been persuaded that it is no violation of the proprieties frankly to state, for the information of the American public, just wherein we think we have improved upon the work of our predecessors.

It must be counted as actually providential that the New York Zoological Society was founded in 1895 by Madison Grant; that it immediately attracted the support

of Doctor Henry Fairfield Osborn; that for twelve years both those gentlemen dedicated an important portion of their lives to the Society's work; that South Bronx Park was acquired by New York City in 1884 and had remained an unspoiled wilderness; that the administration of Mayor Strong accepted in good faith the partnership proposal of the Zoological Society, and that every Mayor and Comptroller and Board of Estimate since 1897 has faithfully supported the Zoological Park undertaking.

The Zoological Park represents a perfectly harmonious joint effort on the part of a powerful philanthropic organization and the taxpayers of the City of New York. By reason of the first large financial sacrifice of the Zoological Society, justly regarded as a pledge of good faith, from the inception of the undertaking, the city government has relied absolutely upon the men and methods of that organization. In the plans and their execution, and in the selection of a permanent working force of 145 persons, there never has been even a hint of interference, or pressure, "political" or otherwise. In working out its own systems of economy in money, and in the saving of time, the Zoological Society has been permitted a degree of freedom of action that is probably without precedent in such matters.

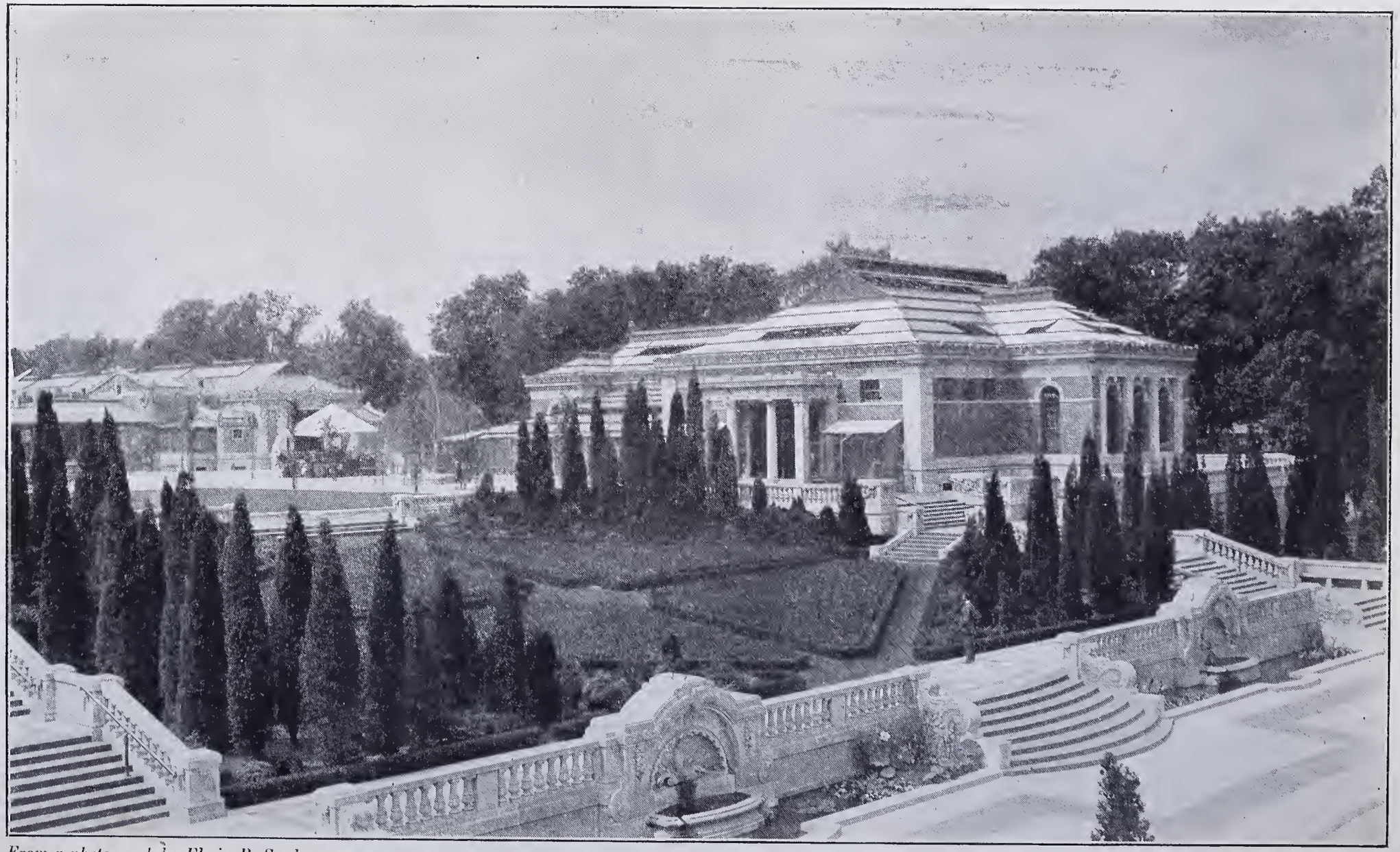
In "maintenance" and in "construction" combined—our two grand divisions of all labor and expenditure—the Zoological Society has paid out over $2,000,000 of public money, so far as we know without even a whisper of a charge of "graft," or "favoritism," "mismanagement," or even "extravagance."

We mention thus prominently the confidence of the city government in the Zoological Society, because that

From a photograph by Elwin R. Sanborn.

The Concourse and Italian Garden, New York Zoological Park.

Bird House at right, Administration Building left.



From a photograph by Elwin R. Sanborn.

The Italian Garden, New York Zoological Park.

Bird House in foreground, Lion House in background.

confidence has been a factor of tremendous importance in securing for New York, in eleven years of active work, a Zoological Park which represents high-water mark for such institutions.

We began under the Reform Administration of Mayor Strong and City Chamberlain McCook and Comptroller Fitch; and we were generously prospered under Mayors Van Wyck and Low, and Comptrollers Coler and Grout. Then there followed four glorious years under Mayor McClellan and Comptroller Metz; and thus were we enabled to achieve in eleven years of actual labor the goal of our heart's desire—practical *completion!* And what has been the price paid by the Zoological Society for the confidence of the highest officers of this city—the Mayor, the Board of Estimate and the Board of Aldermen?

In actual money expended it has cost about $475,000; but in comparison with the unpurchasable time and services of the members of the Executive Committee, the half-million of money is not the most important item. Without having seen it, I would not have believed it possible that such men as Henry Fairfield Osborn, Charles T. Barney, Samuel Thorne, Levi P. Morton, John L. Cadwalader, John S. Barnes, Percy R. Pyne, Philip Schuyler, Madison Grant and William White Niles would give time and services without limit, not only cheerfully but even joyously, for twelve busy years, to any undertaking of this kind. It requires a great many fine men, as well as a great many fine animals, to make a great Zoological Park.

The eleven years of construction were years of intense, unremitting, and at times exhausting effort; but they produced a succession of triumphs. Even the "hard times"

did not stay the Society's progress by more than a few months on our two final improvements for animals. We say to-day that the Park is practically "complete," because, for such an institution as ours, that term is accepted by all sensible persons in a comparative sense. We do not say that the Park is no longer open to improvement, or that further beautification is impossible. It is entirely possible that, during the next ten or twenty years, some other animal buildings may be found desirable.

Prior to 1898, many persons outside of New York wondered why the metropolis of the American continent remained for so many years without a zoological establishment for live animals in keeping with her municipal rank. Even when the men of New York were asked, they could not answer; but now we know.

The event was waiting for South Bronx Park and the Zoological Society!

The former came through the splendid wisdom and foresight of the Municipal Park Commission of 1880-84, which contained, among others, William W. Niles (Sr.) and Charles L. Tiffany. And how many men of New York are there to-day who know that the passage of the act so opportunely creating that commission was due to the hard work of Assemblyman Theodore Roosevelt, or that he was specially chosen for that service by Matthew P. Breen?

As the stranger passes through one of our turnstiles, there spreads before him the most magnificent composition of land and water that ever was dedicated to zoology. Its qualities were well summed up in one sentence by an English critic, F. G. Aflalo, when he described it as being "at once the envy and the despair of all European makers of zoological gardens."

If we could have modelled a site with our own hands, and said to the trees, the rocks, the valleys and the meadows—"Be thou here!"—I am sure we could not have produced the ideal result that the cunning hand of Nature fashioned for us in that marvellous site. Our total area is 264 acres; and it is all that we desire.

Fate graciously so ordered events that the pleasure of discovering South Bronx Park and revealing its beauties to the Zoological Society was reserved wholly for me. The day was a sunny afternoon in February, 1896,

"—when comes the calm mild day as still such days will come
To call the squirrel and the bee from out their winter homes;
When the sound of dropping nuts is heard, though all the trees are still,
And twinkle in the smoky light the waters of the rill."

I entered Bronx Park by way of West Farms, alone and unguided; went along the eastern bank of Bronx Lake up to Pelham Avenue, crossed the old iron bridge and zigzagged back through the wilderness and the glades wherein our animal buildings now stand. I saw everything.

My first sensation was of almost paralyzing astonishment. It seemed incredible that such *virgin forest,* of huge, *old* oaks and chestnuts, tulips, sweet-gums and beeches, had been spared in the City of New York until 1896! But there they were, waiting for us. And then the beautiful ridges and valleys, the open woods, the meadows, the Rocking Stone, and the basins for ponds!

The magnificent possibilities of the place as an ideal home for wild animals in comfortable captivity—*freedom in security*—unrolled before me like a panorama. At the

end of two hours I saw a great New York Zoological Park. But I did not dare to hope that even imperial New York would be willing to spend the money to make it in ten short years.

First, then, of all our advantages we must place our marvellous grounds, which, for such purposes as ours, are in a class by themselves, and incomparable. Because of the tremendous advantage they gave us at the outset, it is hardly fair to compare our establishment with others that are handicapped by small grounds, on a dead level.

Second in line we place our open-air animal dens, aviaries and ranges, generally. Opportunities for outdoor life are available to *about seven-tenths* of all our vertebrates. It is only the serpents and a few other reptiles, some of the smaller monkeys, and about three-fourths of the birds in the Large-Bird House that in summer are not quartered outdoors. The open-air ranges for our hoofed and horned animals are from two to eight times as spacious as such animals can be allowed in even the largest Old-World zoological garden.

As an important item under the above heading, consider our series of Bear Dens.

The bear dens of Europe annoy me greatly; for, in general, they are quite inexcusable. Evidently some of them have been designed by men who never hunted bears. By reason of the improved conditions that surround them —space, open view of the world, sunlight, abundance of water, rocks and companionship—our bears are the jolliest, happiest and most amusing of any in captivity, or out of it! They are more playful than so many monkeys, and although very troublesome on account of their vigor, they are assuredly one of the chief attractions of the Park.

The third feature in this enumeration is our House of Primates, unofficially called the Monkey House. It is notable because it is a house in which apes and monkeys can live long and happily, and because it is free from sickening monkey odors. The undenied success of our Monkey House is due to its new and practically perfect schemes of heating, ventilation, cage arrangements, lighting and sanitation.

Rotterdam has paid us the compliment of building, with the aid of our plans and specifications, an understudy of our Primate House, about as complete as it was possible to erect, even to the wire netting on the guard-rails, only the roof and walls being of different materials.

Our Lion House is the only lion house in the world that employs wire netting for cage fronts instead of heavy prison bars; that has balconies in its cages, and beautiful green tiles on its cage walls instead of whitewash or paint. It is also the only animal building that contains a studio for painters and sculptors.

The Large-Bird House is the only one of which we know that is filled with great flocks of birds flying about in large cages, and with a huge flying cage in the centre of its main hall. Our fundamental idea of large communal cages is, I think, new in our bird houses. It is also our belief that nowhere else in the world is there to be found such a splendid collection of rare and beautiful tropical birds living in such freedom and comfort under one roof.

There are several great outdoor flying cages in other zoological establishments, both in Europe and America. That ours is the most spacious of all is nothing particularly commendable; for all of the others—at Rotterdam, London, Paris, Washington, St. Louis and San Fran-

cisco—are amply large to render their feathered occupants supremely contented and happy. But in one respect we have made a great advance over our colleagues. Our Flying Cage (150 feet long, 75 feet wide, and 55 feet high) has been provided with a concrete pool, of running water, 100 feet long by nearly 30 feet wide, and so deep that it is a constant delight to the diving pelicans, cormorants, ducks, gulls, herons and flamingoes for which it was designed. Visitors like activity among the birds and mammals they come to see, and this spacious pool provokes it, to a delightful extent.

Our Antelope House is the equal of the best elsewhere, and thus far it has preserved its living inhabitants in remarkably good health. Its outside yards are about three times as spacious as those around any other antelope house that we know. They have a total frontage of 1,200 feet and an average depth of 90 feet.

The Small-Deer House is the first of its kind. It houses a great number of species of small deer, gazelles, wild goats and sheep that cannot endure our wet New York winters in the open; and it keeps on exhibition a fine selection of animals that otherwise would have to be taken from their ranges in November or December, and kept in storage until May.

The only rivals of our Reptile House are in the zoological gardens of London, Philadelphia, Rotterdam, Amsterdam, Frankfort and Paris; but we know that our alligator pools, and the systematic collection of turtles and terrapins, are not matched elsewhere.

Our Mountain-Sheep Hill is unique, in that it is the only fine, *natural* outcrop of rocks in a zoological garden or park that is available for a systematic collection of wild

sheep and goats. Between this and manufactured rocks there is a wide difference. But, after all, this feature has brought some disappointments. While other species do well, for some reason as yet unknown the White Mountain Goat and Chamois do not thrive upon it, and require quarters elsewhere.

Let all those who are interested in making comparative studies of the zoological gardens and parks spend a few moments in considering our provisions for bison. The "zoological-park idea" is well illustrated by our herd of 16 American Bison, roaming over two spacious ranges with a total area of about 20 acres. There are some zoological gardens that *as a whole* contain only that area! When you see the breeding-herd—about 25 head of cows and "young stock"—either grazing contentedly on the knoll in the centre of the main range, or galloping toward the corrals at feeding-time, you are thrilled by the feeling that this is an adequate representation of the great American Bison as he lived and throve on his native plains. It was from this herd that the Zoological Society founded the Wichita National Bison Herd, as a contribution to the perpetual preservation of the species by our government. The nucleus herd was taken out of our ranges in October, 1907.

After all is said, it is not alone the fine buildings of brick and stone, or the fine corrals and ranges, that make a zoological establishment great or commanding. It is the living creatures themselves. I have seen some fine animal buildings that were poorly filled with animals, and others that were fully filled with poor animals. If the exhibits do not frequently compel visitors to exclaim, *"How fine your animals look!"* you may know that something is wrong.

If the animals of the "zoo" are not round and sleek and shiny; if their eyes are not bright and their heads erect; if there are no cases of assault and battery on the fences and gates, there is a lack of the glowing vigor that rightly belongs in every well-conditioned wild animal. An early Park sensation was caused by the great Alaskan Brown Bear, "Admiral," who, in order to gain access to a hated rival and his lady love, bodily tore out a large and heavy panel of woven steel bars from the partition between his corral and the next, and trampled it down upon the floor as if it had been a sheet of tin. It would have required at least six men with two heavy sets of blocks and tackles to have done in an hour what that bear did with his naked claws in ten minutes. The exhibition of ursine strength was astounding; and a little later the battle of the two Alaskan giants was a fearsome sight. They stood up on their hind legs, more than seven feet high, and chewed each other in silence until separated.

One word here regarding the personnel of our bear collection, by way of an impression of its zoological value. I think that all of the bears of Europe added together would not make a collection *zoologically* equal to this one; and the reason was in its peak—seventeen species in fine condition.

Of the very remarkable yet little-known giant Brown Bears of Alaska there is *not one in all Europe;* but we have had a collection of seven individuals, representing four good species (and possibly five), as follows: 1 *Ursus eulophus* ("Admiral"), from Admiralty Island; 2 *Ursus dalli,* from Hudson Lake; 1 *Ursus merriami* from the Alaska Peninsula; 2 *Ursus middendorffi,* from Kadiak Island (the famous Kadiak Bear). Last, and most valu-

able of all, we have recently acquired an Alaskan Brown Bear from the Kobuk River, *north of the Arctic Circle,* and only 300 miles south of Point Barrow! Its Latin name is *Ursus innuitus.*

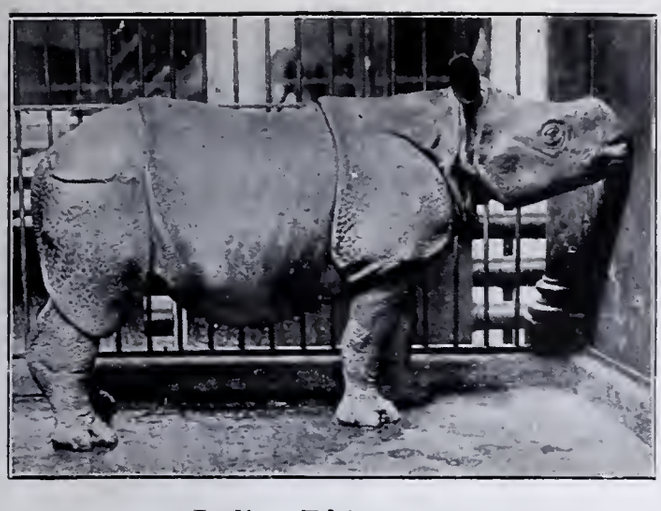
There are also four grizzlies—from Yukon Territory, Wyoming, Colorado, and Mexico. There is a huge Yezo Bear (*Ursus ferox*), from Yezo Island, Japan; a regulation Japanese Black Bear (*U. japonicus*), and a fine side-whiskered Himalayan Black Bear (*Ursus torquatus*), also from Japan! Central Asia is represented by two beautiful golden-yellow Hairy Eared Bears from Kuldcha (*Ursus piscator*) and from Trebizond, Asia Minor, there has come a very satisfactory Syrian Bear. The queer Sloth Bear of India and the ugly and mean Malay Sun Bear have not been ignored. Of the American Black Bears we have specimens from eight different localities, scattered all the way from Prince William Sound, Alaska, to Chihuahua, Mexico, and finally, after ten years of constant effort, we have at last secured a good, healthy black cub from the Andes of Colombia, which represents the relative of the Spectacled Bear, recently described as *Ursus ornatus majori.*

Our Elephant House and its adjacent yards represents high-water mark in wild-animal buildings. It is the crowning feature of the Zoological Park—spacious, beautifully designed, well built, perfectly lighted, heated and ventilated, and generously provided with open-air yards for all its animals. The keepers say that the elephants, rhinoceroses and hippo greatly enjoy their fine quarters, winter and summer; and where has New York City ever acquired elsewhere so fine a building for so little money as $157,000?

But the finest Elephant and Rhinoceros House is of small interest unless the collection under its roof is also of commanding importance. We are extremely fortunate in being able to exhibit a collection of elephants and rhinoceroses in every way worthy of the new building. It contains three elephants, representing three species—the Sudan African, West African Pigmy, and the Indian; two rhinoceroses of two species—Great Indian and African Black Rhinoceros; the Hippopotamus, five Pigmy Hippos and three species of Tapir.

Of the animals in the Elephant House, the Indian Rhinoceros is the greatest prize. Our lusty young male specimen is the second of its kind that has come to America in fifteen years, and it cost the Society $8,000. The Sudan African Elephant, from the Blue Nile country, is twenty years old. The tusks of this species are said to be smaller than those of the African elephants of Uganda and British East Africa, but in height and bulk the Blue Nile animals grow as large as the largest; which means eleven feet at the shoulders.

Consider the collection of antelopes, and other animals, also, in the Antelope House; and ask how many of the world's zoological gardens and parks contain such a showing of rare species. Certainly not more than two or three. We find there a pair of Sudan Three-Horned Giraffes, a Greater Kudu, a pair of Elands, a Sable Antelope, Baker Roan Antelope, the Addax of the Sahara, and the Beatrix Antelope of the Arabian desert, the Beisa, the Sing-Sing Waterbuck, the Leucoryx, the Nylgai, the Bontebok, two species of Sitatunga, the White-Tailed Gnu and the Brindled Gnu, the Reedbuck and Indian Black Buck. Of the above, the following species have bred here: Giraffe,



Indian Rhinoceros.

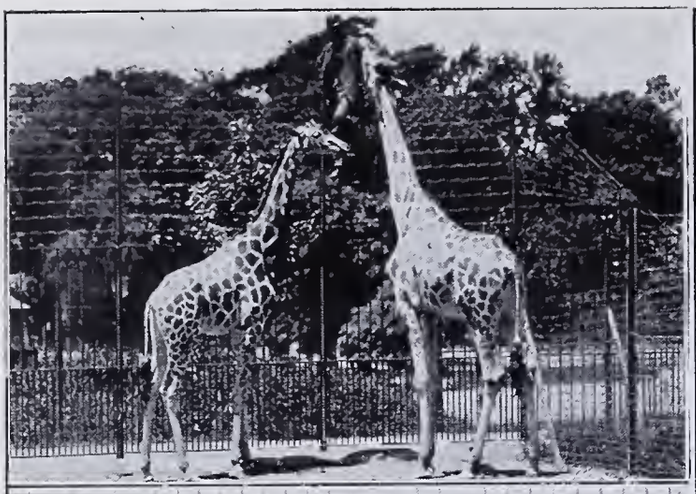
Boa Constrictor (black phase).

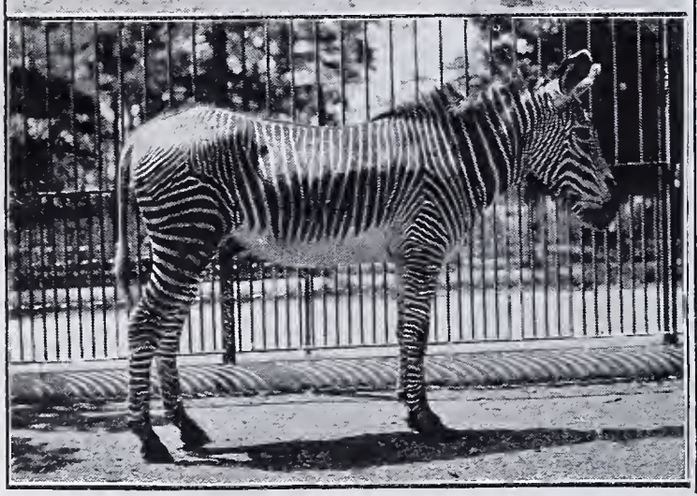
Sudan African Elephants.

Whooping Crane.

From photographs by Elwin R. Sanborn.

The Elephant House and Surrounding Yards.





From photographs by Elwin R. Sanborn.

Nubian Giraffes.
Alaskan Brown Bear.
Prejevalsky Wild Horse.
Grevy Zebra.

Markhor.
Rocky Mountain Goat.
Snow Leopard.
Sable Antelope.

Eland, Beatrix Antelope, Leucoryx, Nylgai, and Black Buck.

The Zebra House, and the houses and corrals behind it, contain a collection of zebras and wild horses of which we are shamelessly proud. It is a great show. Look at the list of inhabitants on August 1, 1925:

1 Grevy Zebra, 2 Cape Mountain Zebras, 1 Hartmann Mountain Zebra, 2 Grant Zebras, 1 Chapman Zebra, 3 Chapman-Burchell Zebras, 1 Kiang, 1 Onager, 1 Abyssinian Wild Ass and 5 Prjevalsky Wild Horses.

Young have been reared by the Prjevalsky Horses, and the Mountain, Grant and Chapman-Burchell Zebras.

Our Asiatic deer (eleven species) are breeding at a rate so rapid that the young animals have become a serious embarrassment. Of all our Asiatic deer, the most satisfactory are the Axis, or Spotted-Deer, from the jungles of India. They are surpassingly beautiful, they do not fight (much), they are "easy keepers," and they breed persistently.

In 1906 and the years immediately following, we successfully acclimatized a herd of five Rocky Mountain Goats, and reared their young, in the very difficult altitude and climate of New York City. That was the first breeding of that species in captivity. Later on, as the goats died and disappeared, their very comfortable corrals and their house were given over to our Musk-Ox herd, which on August 1, 1925, contained five lusty animals, with a prospect of "increase by natural selection" in 1925.

The Lion, the Tiger, the Jaguar, the Leopard and the Puma are commonplace, and even *passé*. Every collection of live animals has them; but one can count on the finger of one hand all the zoological gardens and parks

that exhibit specimens of the rare and beautiful Snow-Leopard, or Ounce of Tibet, the Clouded Leopard of Borneo, the Cheetah of Africa, and the shaggy Siberian Tiger.

Our finest lion, old "Sultan," was well-beloved of the animal-painters and sculptors, and I think he has been painted and modelled about one hundred times. His countenance was refined, dignified, imposing and beautiful, and his form was about perfect.

The Caribou, Moose and Big-Horn Sheep we have given up as impossibilities; at least for acclimatization in New York. The salty humidity of the climate, the low altitude and the wet weather of every winter are hopelessly against those species.

The building originally named the Small-Deer House was one of the last buildings erected, and to-day we call it the Kangaroo House, because it contains one of the largest and finest kangaroo collections in the world. Besides the bewildering array of kangaroo and wallaby species, rare and common, it houses over six species of wild swine and such prime rarities as the Great Ant-Eater, Wombat, Giant Tapir, Capybara, and Aardvarks when we have any. The corrals of the big wild swine from the jungles of Africa are half torn up, because the labor of doing it has been such a joy to the animals that we have permitted it to go on. Presently we will restore the surface—in order that the swine may have their diversions all over again.

And all this time we have not found space for a word concerning our wonderful bird collection, to which we have devoted the Aquatic-Bird House, the Large-Bird House, the great Flying-Cage, the Duck Aviary, Pheasant Aviary, Ostrich House, Crane Paddock, and Wild-

Fowl Pond. The great Eagle and Vulture Aviary came near the finish of the final plan that we laid down eleven years ago.

The Large-Bird House shelters, within and without, a glorious array of rare, odd and beautiful feathered forms. Of all birds, no species is more immaculate than the green and crimson Touracou, or Plantain-Eater, with his jaunty crest, and wings of flame that contain in their primaries ten per cent. of metallic *copper!* Structurally, no bird is more interesting than that odd mixture of characters, the Seriema, from South America, a composite stork-plover-bird-of-prey without talons. The South American Sun-Bittern beside it, with a glorious sunburst painted on each wing, is equally rare. The Laughing-Jackass from Australia is really a giant kingfisher. The long row of queer but pleasing Toucans of several species instantly arrest the eye, and the Toco Toucan would excite admiration anywhere. Close beside the Victoria Crown Pigeons of New Guinea, the odd and erratic Roadrunners from southern Arizona cheerfully hop and jerk through the day, watching the visitor with eyes that suggest practical jokes and mischief.

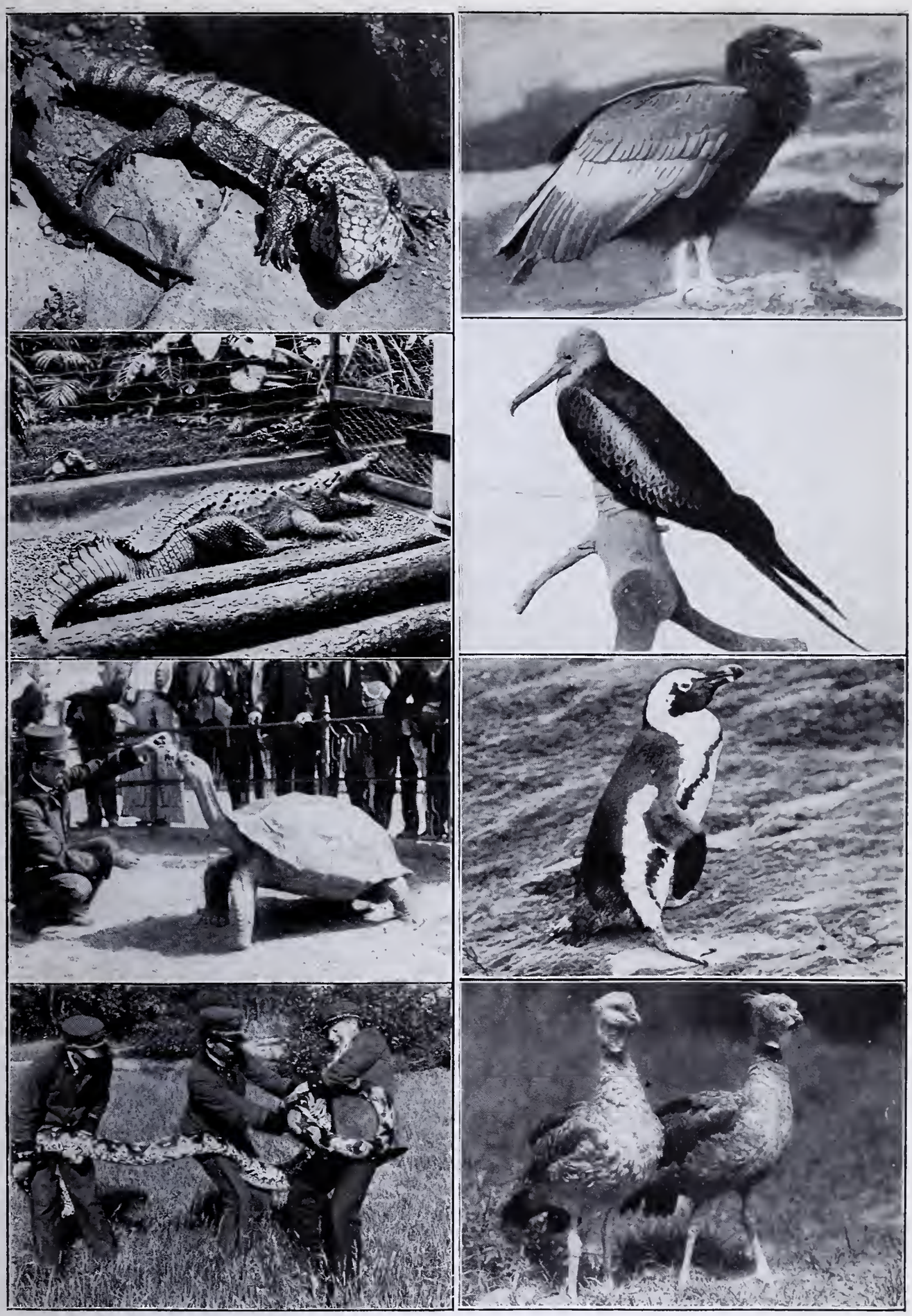
In the great main hall of the Large-Bird House about 75 species of birds, perhaps the queerest *omnium gatherum* ever peacefully harmonized in one apartment, disport joyously in the huge indoor flying-cage. There are gaudy Mandarin Ducks, Wood Ducks, Patagonian Plovers, Ruffs, Sandpipers, Quails of various species, Golden Pheasants, Bleeding-Heart Pigeons from the Philippines, a few Terns and Skimmers, and song birds in great variety of color and song.

The Parrots' Hall is teeming and screaming with Par-

rots, Macaws, and Parakeets; but there also will be found a large collection of tropical Pigeons, Doves, and Quail. When the visitors have had enough of the noisiest birds on earth, it is pleasant to drift out into the Glass Court, where the American song birds have almost exclusive possession. There you will find twelve species of our warblers living most happily in one big cage; and near by there are other and more vigorous songsters in goodly numbers.

The Ostrich House was built for the ostriches, rheas, emus and cassowaries, and while it contains good examples of all these groups, many other rare feathered folk have crept into that comfortable haven of refuge. It is an odd gathering, scattered somewhat in summer, but in winter embracing such zoological prizes as the California Condor (now nearly extinct), the Harpy Eagle of South America, the odd Bataleur Eagle of Africa, the gorgeous King Vulture, the Paradise Crane, Java Peacock, and others.

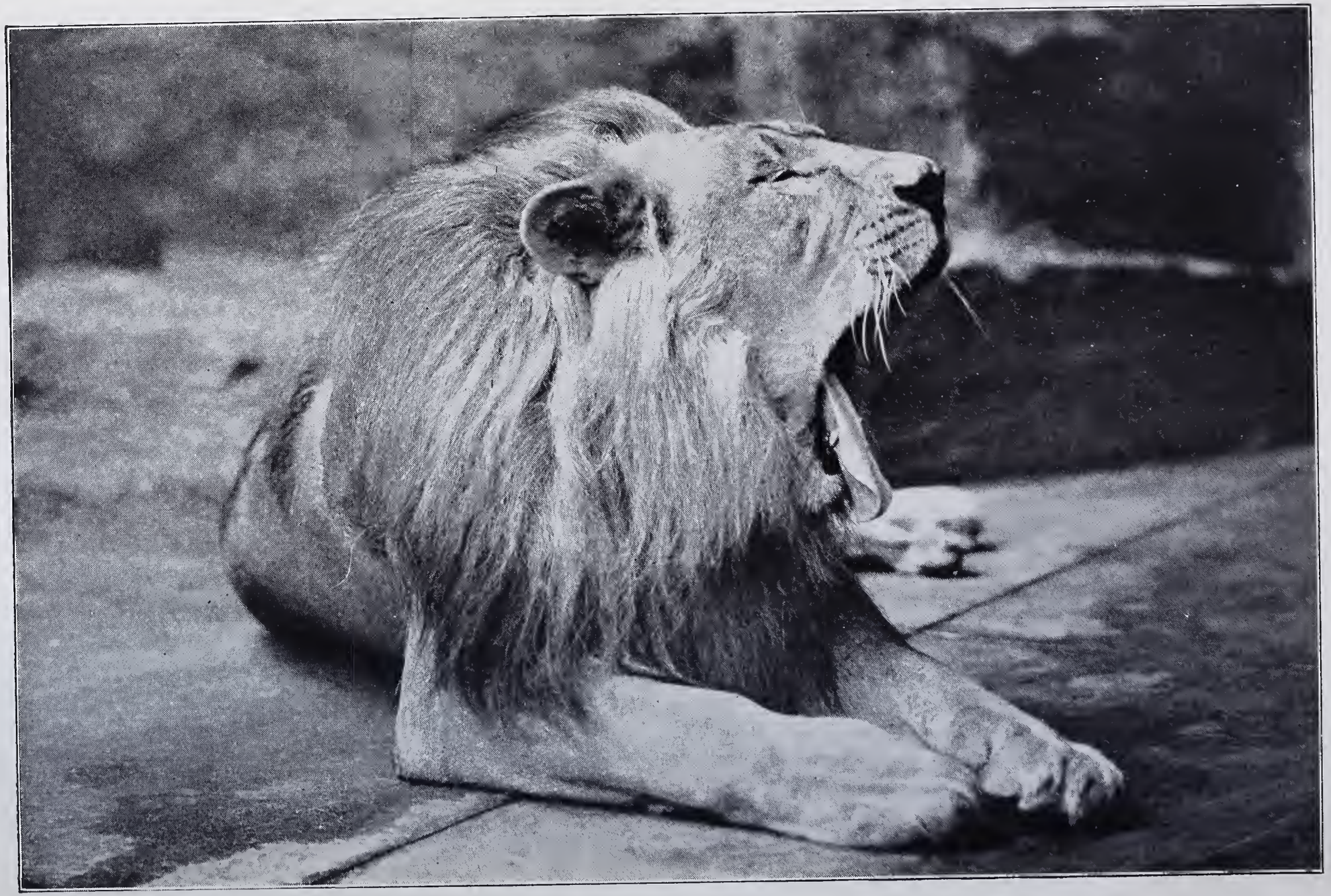
Our Pheasant Aviary is 240 feet long, and its 48 runways and shelter-houses are all 8 feet in height. It is a two-story installation. The pheasants live upon the ground; and aloft, on the perches and in the bush-tops, live many species of hardy song birds, pigeons and doves. Each bird in the place can exercise the following options provided for the promotion of its comfort: a sandy bed in the sun, a perch in the sun, a shelter open on the front only, or a closed shelter with only one small door. It is here that the pheasant fancier will find the gorgeous Golden, Reeves, Amherst, and Impeyan pheasants; the Silver, Japanese Rick-Neck English, Fire-Back, Elliott, Eared, and many others.



From photographs by Elwin R. Sanborn.

The Tegu Lizard.
Florida Crocodile.
Elephant Tortoise.
Reticulated Python.

California Condor.
Frigate Bird.
Black-Footed Penguin.
Crested Screamer.



From a photograph by Elwin R. Sanborn.

A Yawning Lion.

The Reptile House was the first building erected in the Park, and it was dedicated at the formal opening on November 9, 1899. It was built by the Zoological Society, and, with about 20 other installations, was presented to the city on the date mentioned. It was given a leading position in the programme because of the universal ignorance of the public regarding reptiles generally; and it is safe to say that it has cured a greater amount of ignorance and folly than any other collection of the Park.

Under this broad roof, in comfortable captivity, is gathered the world's greatest collection of poisonous and other serpents, crocodilians, turtles, terrapins, tortoises, and lizards.

Our alligator pool in the Reptile House is far in advance of every other crocodilian pool, and represents one of the most complete "hits"—in a small way—that we have made. It is beautifully lighted, it has a living jungle background, it is deep and wide, its water is properly warmed, and each habitant can crawl out upon the bank and view the world whenever it suits him to do so. Our crocodiles and alligators eat as greedily as pigs, and they grow with a degree of rapidity that has completely upset all previous ideas and records of the growth of such reptiles.

We have been at much pains to establish in the centre of the main hall of reptiles an elaborate turtle-crawl, with a deep pool at one end, in which to make comfortable a systematic collection of fresh-water turtles and terrapins. The eastern wing of the building is our Tortoise and Lizard House, heated in winter like a bake-oven, and in summer opening upon a series of sanded yards, in which the reptiles can roast themselves in the hot sun until they feel "fine."

Iguanas and monitors do not thrive in small cages, but put them in a sanded yard that is hot enough to roast eggs, and straightway they begin to run, and jump fences, and fight and eat in a manner that is at first fairly bewildering! It seems odd to think of Iguanas fighting, but in our yards they are much given to it, greatly to the annoyance of their keepers.

If we are to be fair to ourselves, we must call attention to the labelling of the Zoological Park collections, particularly the descriptive labels, the maps of distribution, the charts, keys and picture-labels in endless profusion, to inform and entertain the visitor, and render the collections of the utmost value.

On June 1, 1925, the total number of living specimens in the Park was 3,363, and they represented 1,079 species.

The tale is told. The Zoological Park and its collections must now speak for themselves. In 1924 they spoke to 2,572,050 visitors. The common people hear them gladly, but as yet the scientists of America, as a mass, do not seem to know that the New York Zoological Park has arrived. They are, as a rule, too much interested in soarings after the infinite and divings after the unfathomable to care for such trivial things as living animals drawn from strange places. But the unscientific millions, whom we specially desire to instruct and entertain, are with us, in ever-increasing numbers; and for them we will continue to strive.

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